

Surrey Heath Local Plan Strategic Highway Assessment Report: Technical Annex

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1 INTRODUCTION

1.1 Regulation 19 Appraisal

- 1.1.1 Surrey Heath Borough Council are preparing a new Local Plan. Surrey County Council have been commissioned to assess the impact of the Local Plan allocations, and this document details the technical aspects of the modelling undertaken for this assessment and forms an annex to the main report, the Surrey Heath Strategic Highway Assessment, which focuses on the outcomes of the modelling.
- 1.1.2 Surrey's transport model SINTRAM72 has been used for the assessment as well as a cordoned Local Model of Surrey Heath and its immediate surroundings. A future year of 2038 has been assessed, to tie in with the horizon year of the Local Plan period. Validation of the model and details of the forecasting methodology is detailed in the subsequent sections.
- 1.1.3 Section 2 describes the development of the Base year (2014) model from which forecasts are subsequently projected. The section introduces the two-level modelling system that is applied.
- 1.1.4 Section 3 sets out the model validation of both flows and journey times.
- 1.1.5 Sections 4 to 8 describes the forecasting process. This is based on forecasting travel demand using modelling components for trip productions and attractions (trip ends), and the patterns of travel (trip distribution). The impact of travel demand on the transport network is modelled using network assignment procedures. Section 8 also explains how the demand for travel, using the higher-level, multi-modal 'SINTRAM72' modelling, is converted to forecasts of traffic demand used to provide forecasts of peak-hour traffic conditions on the Surrey Heath highway network in 2038.
- 1.1.6 The Appendix contains a number of figures and tables that are referenced in the main text.
- 1.1.7 The figures and tables in this report are designed for viewing in print and at standard scales, but they have a resolution that enables them to be viewed on-screen with a reasonable level of zoom to facilitate reading and discerning details.

2 BASE MODEL DEVELOPMENT

2.1 Model and Scope

- 2.1.1 The modelling is focused on a local highway model that covers the borough of Surrey Heath and a hinterland. The hinterland incorporates areas of Bracknell Forest and Windsor and Maidenhead to the north, Runnymede to the east, Guildford and Woking to the south, and Rushmoor and Hart to the west.
- 2.1.2 This local model is derived from Surrey County Council's (SCC) regional, multi-modal transport model, version SINTRAM72¹. The regional model is used to provide initial ('prior') base year highway travel information for the local model in the form of origin-destination (OD) trip matrices, as well as to forecast changes. The prior OD matrices from SINTRAM72 are refined as part of the validation process reported below in Section 1.

¹ Developed in 2017

2.1.3 The modelling system, all of which is implemented in OmniTRANS modelling software, may thus be understood as having two levels, with SINTRAM72 to forecast demand, and the local Surrey Heath model to provide assessments of the highway conditions for different potential allocation sites.

2.2 Further Model Documentation

2.2.1 The validation of the SINTRAM72 model provides an important background and a further basis of assurance for the Surrey Heath modelling; its validation and technical reports listed below are relevant and available from Surrey CC on request.

2.2.2 SINTRAM72 reports include:

- The calculation of trip ends and car availability described in *Technical Note TN1 Processing Trip Ends*.
- The development of Base trip matrices described in *Technical Note TN3 Base Trip Matrix Production*.
- The validation of SINTRAM72 described in *Technical Note S72 TN4 Model Assessment and Validation Report*.
- The nature of the modelling described in *Technical Note TN5 Model Technical Report*.
- Besides this document, aspects of the model are also described in the *User Guide, Running the SINTRAM Model*.

2.2.3 In addition to the SINTRAM72 reports, *The Local Model User Guide* provides further information on the operation of the Local Model.

2.3 Base Year

2.3.1 The model base year is 2014.

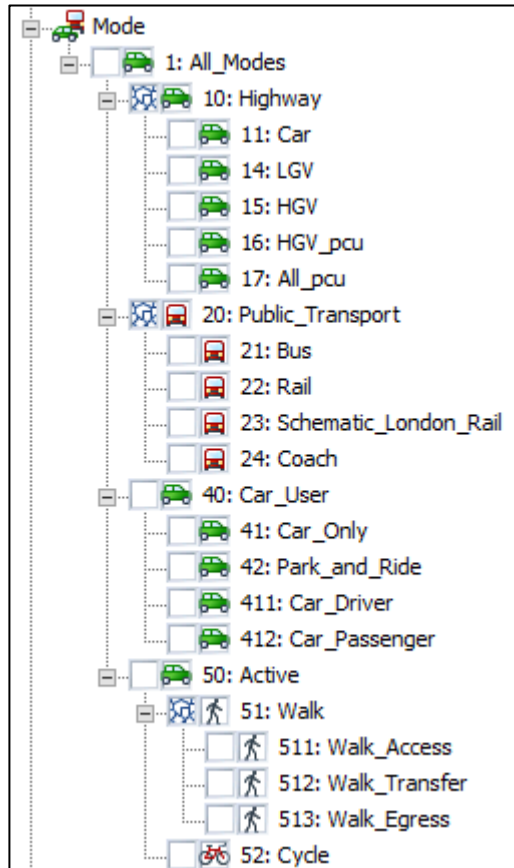
2.4 Modes of Transport

2.4.1 The modelling of demand in SINTRAM72 is multi-modal, with the main modes of:

- Highway;
- Public Transport (PT); and
- Active.

2.4.2 As shown in Figure 2-1, these categories include an extensive number of sub-modes.

Figure 2-1 Travel modes for demand modelling



2.4.3 For both the SINTRAM72 and Local Model cases, primary highway vehicle types are: car; light goods vehicles (LGV); and heavy goods vehicles (HGV). Additionally, bus vehicles are included in the highway traffic, as are the car components of Park & Ride trips².

2.4.4 For highway assignment modelling, all the vehicle types are considered in terms of passenger car units (PCUs). Most vehicles on the road have a PCU value of 1.0, i.e. 'vehicles' and 'PCUs' are the same, but HGVs have a PCU value of 2.0 and buses of 2.5, reflecting their relatively greater impact on network capacity.

2.5 Time Periods

2.5.1 The starting point for the calculation of travel demand is an average 24-hours for a working day in a 'neutral' month (avoiding significant holiday periods and more extreme winter weather). This enables total daily trip rates by trip purpose to be assumed constant over the forecasting period.

2.5.2 For most demand modelling though, trips are allocated to the four time-periods of AM (0700 – 1000), Inter-Peak (1000 – 1600), PM (1600 – 1900), and Off-Peak/night-time (1900 – 0700).

2.5.3 The demand modelling focuses on the 12 daytime hours covered by AM, Inter-peak (IP), and PM, but return-trips include consideration of Off-Peak (OP) travel.

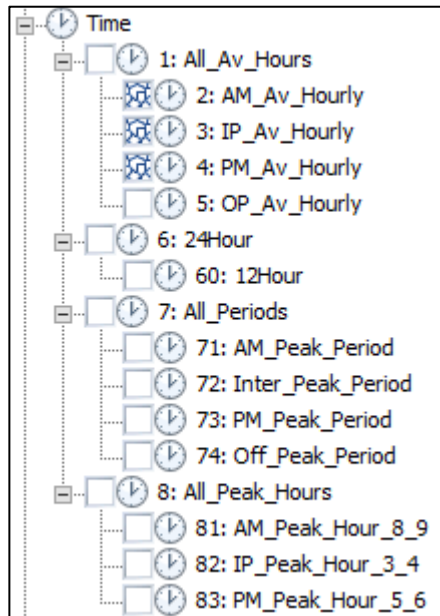
2.5.4 The SINTRAM72 highway modelling uses 'peak hour' factors to represent heightened levels of congestion within the AM and PM peak periods, respectively

² Park and ride trips include connectivity between car and rail as well as traditional car and bus.

taken as occurring for the peak hours 0800 – 0900 and 1700 – 1800. For the Local Model AM and PM peak hours, trips are further adjusted with reference to values of local peak-hour traffic counts.

- 2.5.5 An average hourly Inter-Peak highway network assignment is generated in the Local Modelling but is not subject to specific validation or reporting.
- 2.5.6 The set of time periods used at various points in the modelling is shown in Figure 2-2.

Figure 2-2 Time periods used in modelling

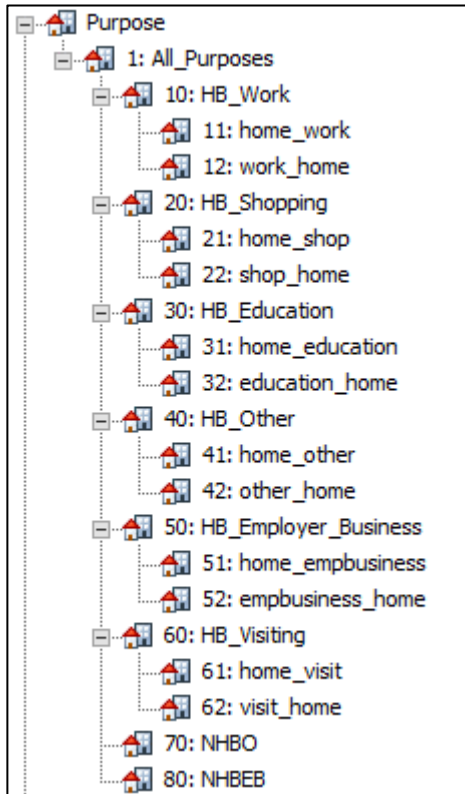


2.6 Demand Types

- 2.6.1 For demand modelling, trips are initially considered as ‘tours’ and identified as ‘Production-Attraction’ (‘PA’) trips. Tours apply to home-based (HB) trips, with an outbound trip from the home implying (in nearly all cases) a return trip later in the day. Non-home based (NHB) trips do not imply return trips. For network assignment modelling, and, importantly, for local modelling, trips are considered as ‘Origin-Destination’ (‘OD’) movements for a particular time period, that is, OD trip tables (matrices) include both outbound and (returning) inbound home-based trips, as well as any NHB trips arising in the particular time period.

- 2.6.2 The set of trip purposes used in demand modelling is shown in Figure 2-3.

Figure 2-3 Trip purposes used in demand modelling



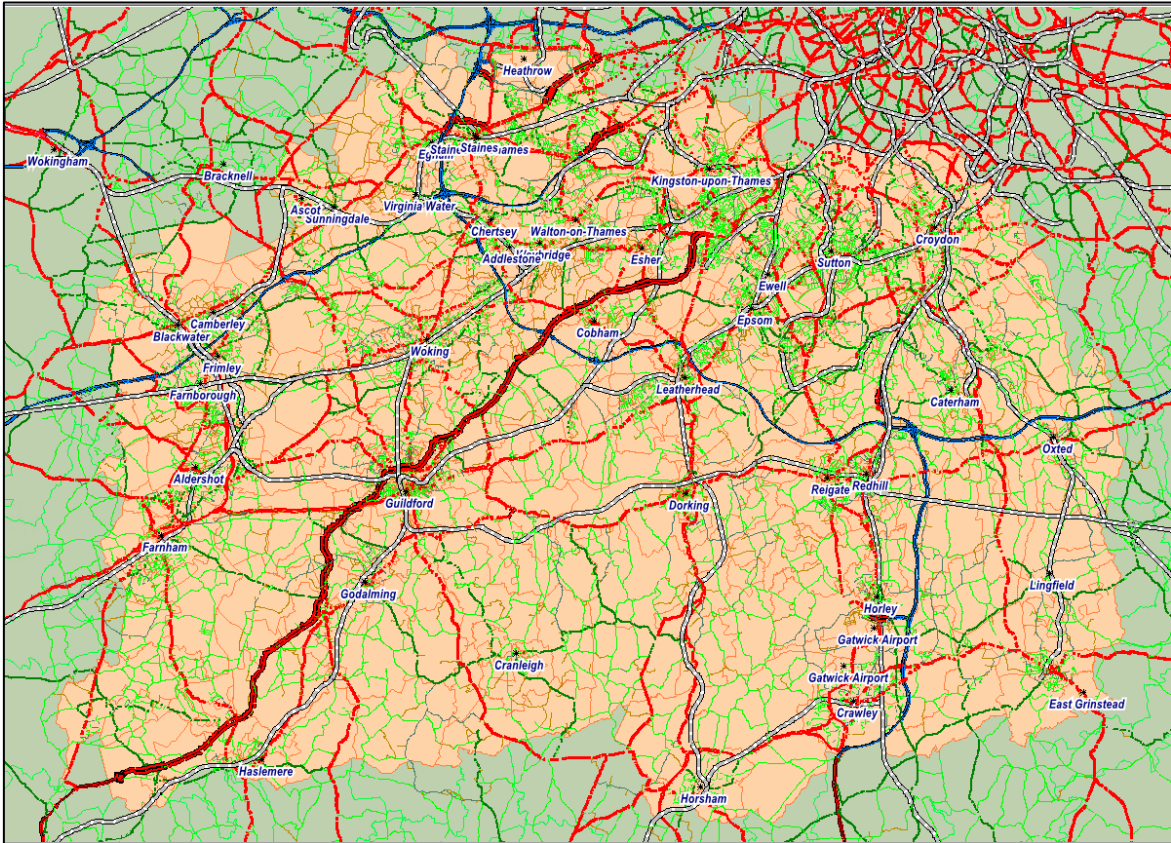
2.6.3 Travel demand is further categorised in the demand modelling according to the availability of a car for travel.

2.6.4 For the Local Model, all person car trips are considered as all purposes combined but, obviously, the pattern of trips reflects the underlying trip purposes used in the demand modelling.

2.7 Study Area

2.7.1 Figure 2-4 shows a part of the SINTRAM72 transport network. An 'Inner Study Area' (ISA), where the modelling is most detailed, is shown with a light orange background. The ISA includes Surrey and some adjacent areas.

Figure 2-4 SINTRAM72 inner study area



2.7.2 The Local Model is defined by a cordon around the borough of Surrey Heath and some adjacent areas in the SINTRAM72 model, as shown in Figure 2-5 below, to produce the Local Model shown in Figure 2-6 following.

Figure 2-5 Extraction of Surrey Heath network

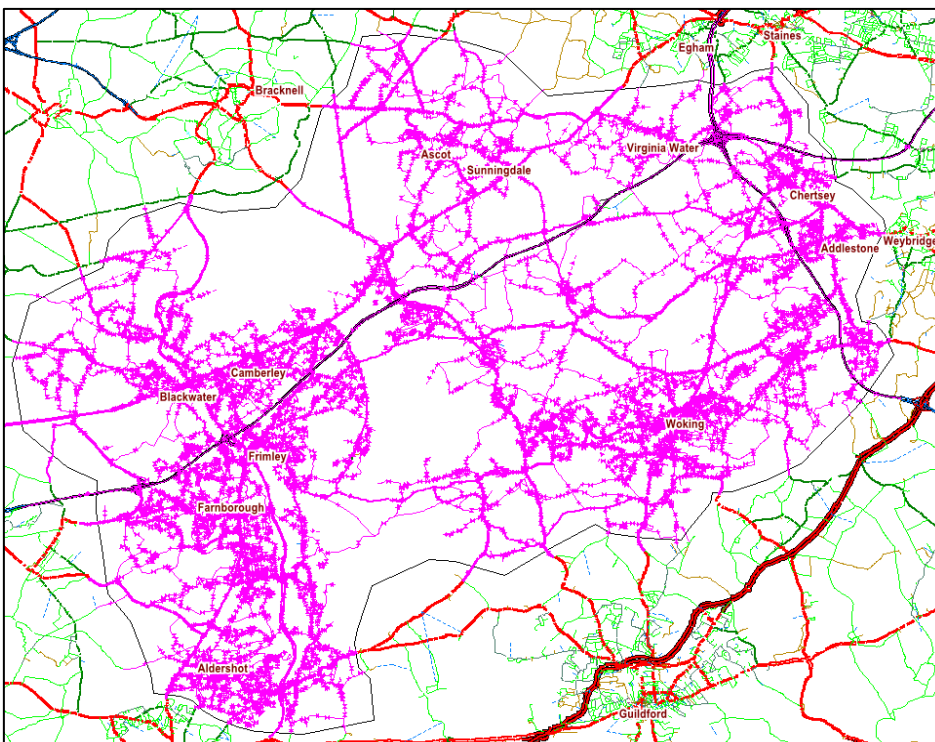
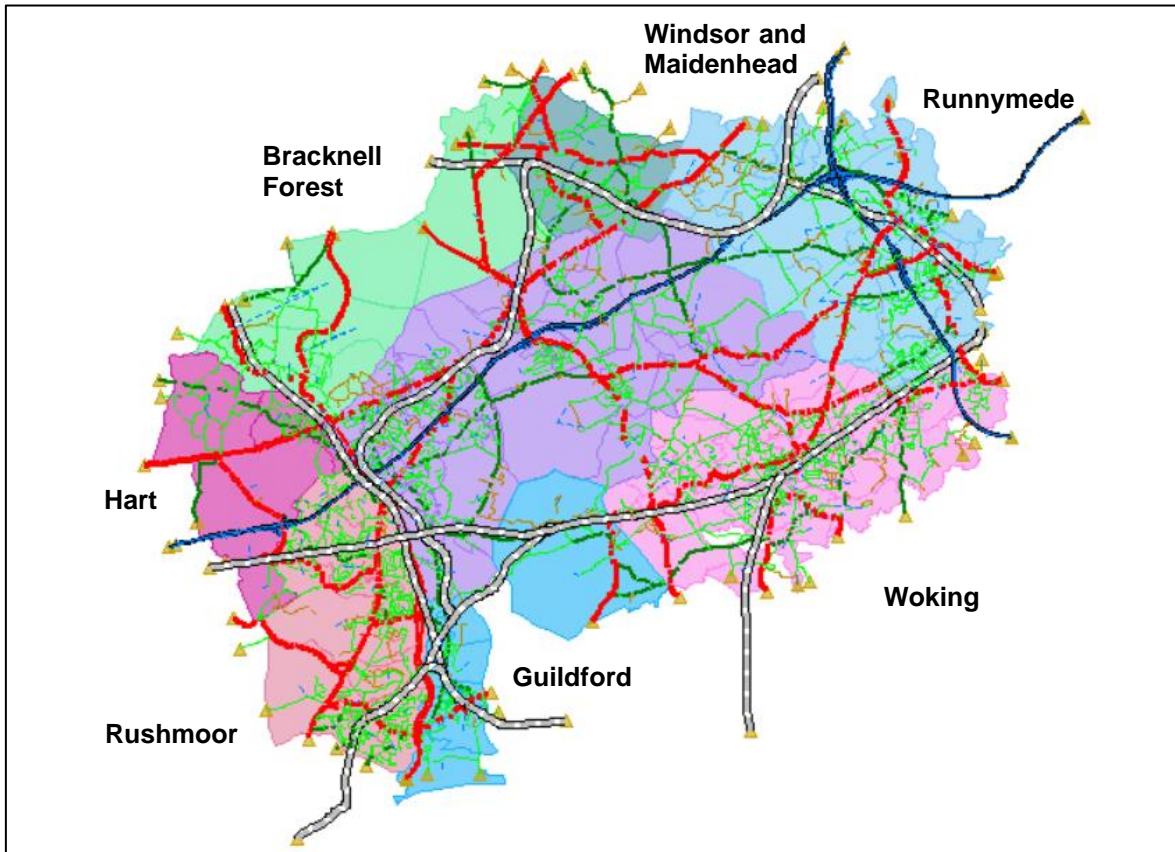


Figure 2-6 Local Model network showing Surrey Heath and surrounding areas

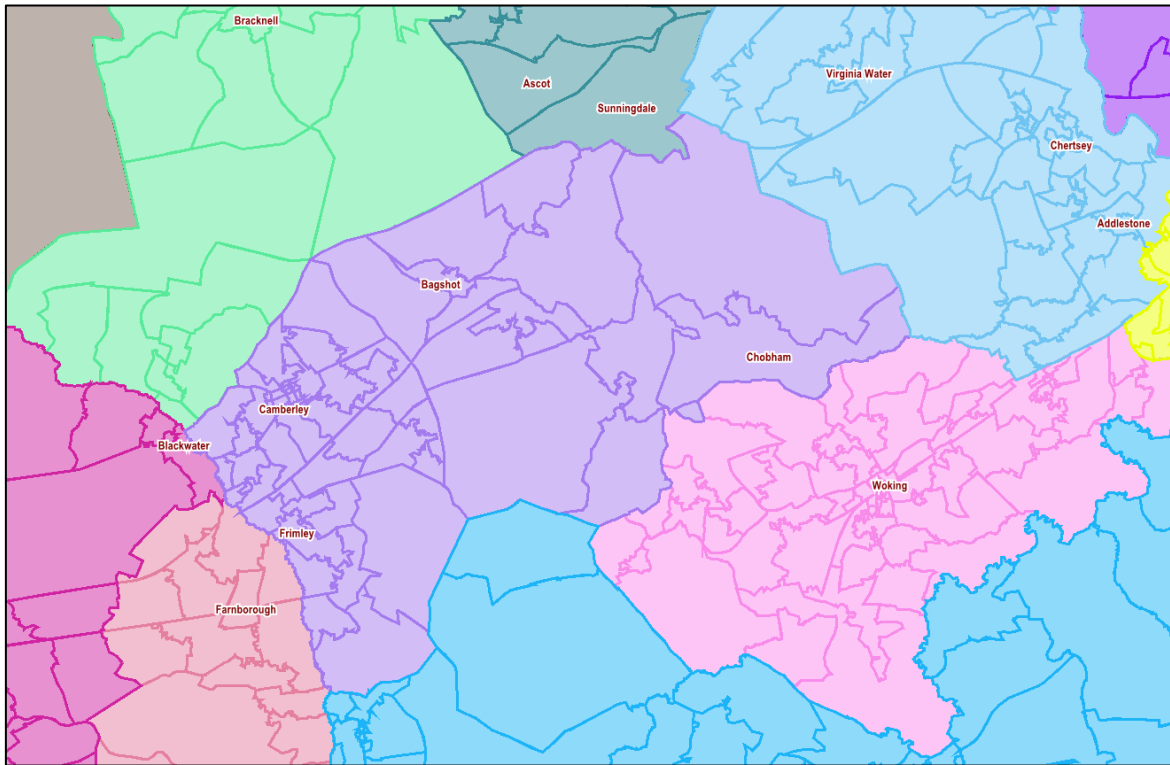


2.7.1 Surrey Heath is bisected from east to west by the M3 and contains Junctions 3 and 4 of this motorway. In addition to this stretch of motorway within the borough, the wider model includes junctions 11 and 12 of the M25. These roads are the responsibility of National Highways.

2.8 Zoning

2.8.1 The Local Model has 304 zones defined. Of these, 72 correspond to the cordon crossing points, shown as triangles in Figure 2-6 above. Figure 2-7 below shows example details of the zoning in Surrey Heath and the surrounding area.

Figure 2-7 Model zones in and around Surrey Heath Borough



2.9 Network Review

2.9.1 In order to ensure that the model network reflects layout on street, a review of the SINTRAM network in Surrey Heath and its immediate surroundings was carried out. This involved checking numerous parameters including speed limits, road class, number of lanes, junction layouts and priorities, one-way streets and banned turns. Checks were made against a variety of information sources including SCC's street gazetteer data and aerial mapping.

2.10 Junction Modelling

2.10.1 The network modelling includes explicit modelling of junctions. This is naturally more prominent in urban areas. Figure 2-8 illustrates junction modelling at Junction 3 of the M3. This includes the intersection of the A322 and M3 roads, which is also shown in Figure 2-9 where the symbols indicate the location of additional attention to the modelling of delays when merging onto motorways.

2.10.2 The design of a junction determines the volume of vehicles able to pass through the junction in a defined period of time, and the maximum volume is the saturation flow (pcu/hour). OmniTRANS uses basic saturation flows for each movement per junction type, differentiated by type of movement e.g. left or right turning, straight ahead etc. The software decreases the saturation flow automatically accounting for effects like the number of lanes, shared lanes, give way, blocking probabilities, signal settings, etc.

2.10.3 Signal junctions are coded within the model as having 'automated' signal timings. This means cycle times and green times are not explicitly coded to match observed settings. The model calculates an optimal time and green times for the given junction layout and turning flows. Using the automated signal settings ensures that when forecasting is undertaken, signal timings are appropriate as they adapt to match the

future traffic flows. This reflects what would occur on street whereby signal timings would be revalidated in response to changing flow conditions.

Figure 2-8 Junction controls and lane markings

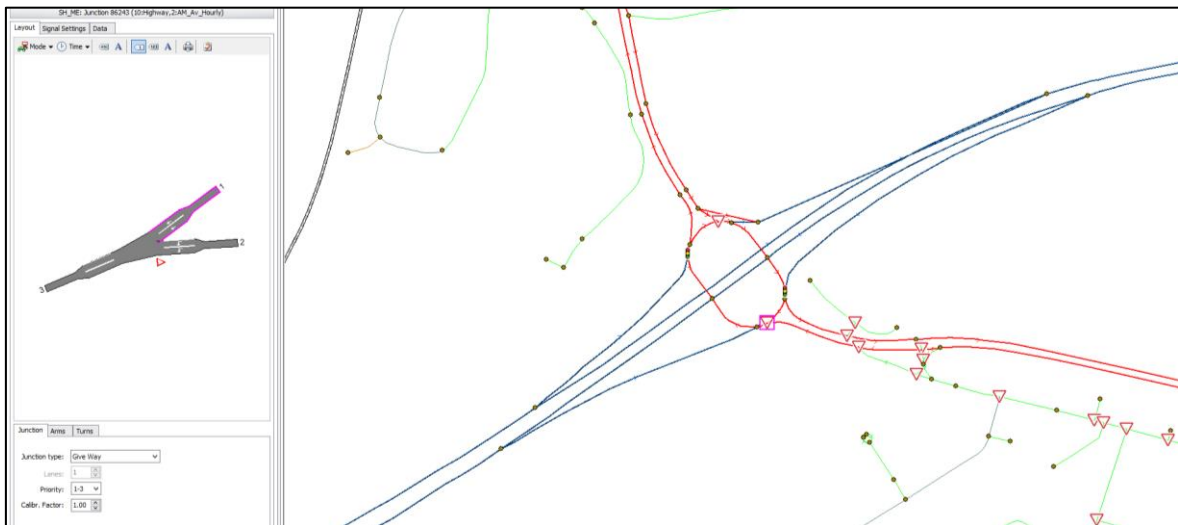
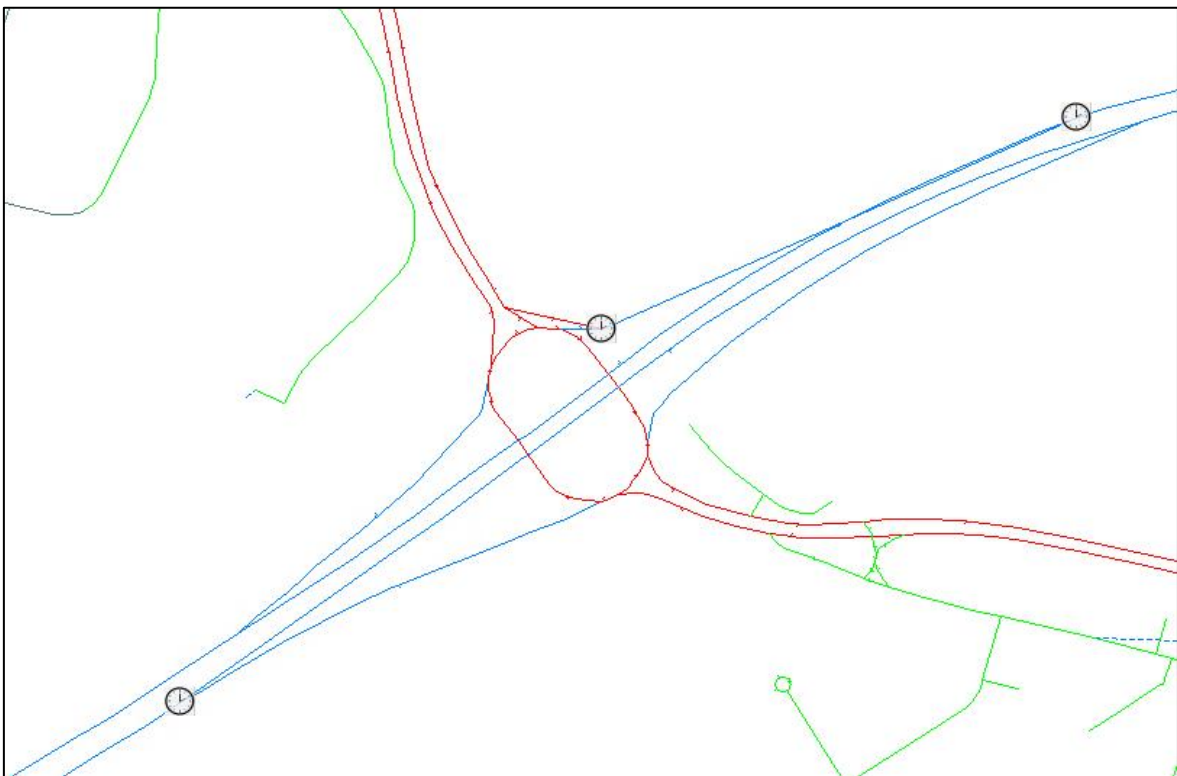


Figure 2-9 Modelling of motorway merges



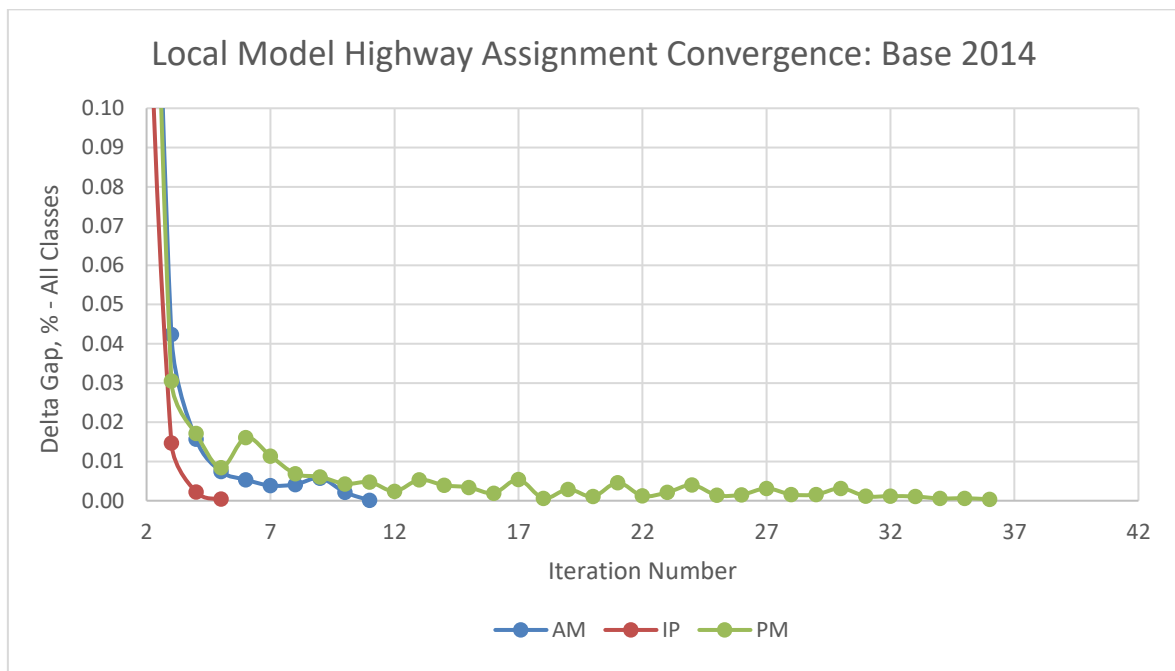
2.11 Assignment

2.11.1 The local highway assignment modelling is provided by the OtTraffic component of OmniTRANS, which provides multi-user class (MUC) equilibrium assignment.

2.11.2 The MUC assignment models the combined effects of cars, LGVs, and HGVs on congestion, while supporting different routing characteristics for each class.

- 2.11.3 Congestion effects on links are modelled via speed-flow curves derived from 'COBA', as specified in Appendix D of Transport Appraisal Guidance (TAG) Unit M3.1 "*Highway Assignment Modelling*", and which take account road types, widths, and localities (urban, rural, etc.).
- 2.11.4 Delays at junctions are modelled via relationships based on 'time-dependent queuing theory'. These are described further in the OmniTRANS support document *Junction Modelling*.
- 2.11.5 Additionally, SCC's consultants have implemented a custom 'cost function' for modelling merging delays at motorway junctions. This is based on TRL research evidence documented in Appendix D.9 of TAG Unit M3.1.
- 2.11.6 Routes through the network are calculated in terms of 'generalised time' (units of minutes). The coefficients for the expressions used to calculate generalised time are the same as reported for SINTRAM72 and are taken from the November 2016 TAG Databook for values of time (VoT) and vehicle operating costs (VOC) applicable to each of Cars, LGVs, and HGVs.
- 2.11.7 The assignments are run through an iterative process which is halted when the variation in results, as defined by the TAG (Unit M3.1, Section C.2.4) 'Delta' Gap statistic, is less than the TAG target value of 0.05%.
- 2.11.8 The convergences for the Surrey Heath network are shown in Figure 2-10 for the AM, IP and PM base year case.

Figure 2-10 Highway assignment convergence - epsilon values



- 2.11.9 It can be seen that initial convergence is quite fast in the base year for the AM and IP time periods, with the PM peak hour taking a little longer.

3 MODEL VALIDATION

3.1 Introduction

3.1.1 The validation reported here focuses on the local highway model that covers Surrey Heath and a hinterland incorporating parts of adjacent authorities.

3.1.2 As described previously, this local model is derived from Surrey County Council's regional, multi-modal transport model, version SINTRAM72, which is used to provide initial ('prior') base year highway travel information for the local model in the form of origin-destination (OD) trip matrices, and later could be used to forecast changes in the demand for travel, in for example 2038, the local plan horizon year. The prior OD matrices from SINTRAM72 are refined as part of the validation process reported in this section.

3.1.3 This chapter focuses on the local model base year (2014) highway validation, considering the comparison of modelled traffic flows with observations at count locations and comparisons of journey times along a set of seven journey time routes defined for the purpose. Changes to the matrix due to Matrix Estimation have also been considered alongside this.

3.2 Assessment Objectives

3.2.1 The primary objective of the local model validation is to provide assurance that the model's replication of observed base year traffic flows and congestion levels is sufficient, also to give confidence in any potential forecast highway network modelling for using this model.

3.3 Validation Criteria

3.3.1 Validation simply compares modelled and observed data. The standard criteria for assessing highway network models is provided by the Department for Transport's TAG guidance, notably, *Unit M3 Highway Assignment Modelling*.

3.3.2 The validation of a highway assignment model includes comparisons of the following:

- a) assigned flows and counts on individual links as a check on the quality of the assignment; and
- b) modelled and observed journey times along routes, as a check on the quality of the network and the assignment.

3.3.3 For trip matrix validation within traffic assignments, the measure which should be used is the percentage differences between modelled flows and counts.

3.3.4 For link flow validation the measures used are the absolute and percentage differences between modelled flows and observed counts as well as the GEH statistic. The GEH statistic is a form of the chi-squared statistic that incorporates both relative and absolute errors, and is defined as follows:

$$GEH = \sqrt{\frac{(M-C)^2}{(M+C)/2}}$$

where: GEH is the GEH statistic
 M is the modelled flow
 C is the observed flow

- 3.3.5 For journey time validation the measured used is the percentage difference between modelled and observed journey times, subject to an absolute maximum difference.
- 3.3.6 The TAG acceptability guidelines for each of these measures are summarised in Table 3-1 below.

Table 3-1 Validation acceptability guidelines

Validation Criteria	Acceptability Guideline
Individual flows within 100 vph of counts for flows less than 700 vph	> 85% of cases
Individual flows within 15% of counts for flows from 700 to 2,700 vph	
Individual flows within 400vph of counts for flows more than 2,700 vph	
GEH < 5 for individual flows	
Modelled journey times within 15% (or 1 minute, if higher)	

- 3.3.7 Checks of route choice were also undertaken as part of the validation process. Modelled routes were compared against Google maps data as well as against local knowledge and judgement. This is described in more detail in section 3.11.
- 3.3.8 Note that the latest update to TAG unit M3-1 states that the validation of a highway assignment model should not only be about achieving the flow validation criteria. This is so that matrix estimation is not relied upon too much and some models where flow validation is not quite met are still fit for purpose. The limits set out in relation to matrix estimation changes are listed in TAG unit M3-1 Table 5 (copied below in Table 3-2) and should be respected as a priority over validation standards in Tables 1, 2 and 3 (summarised in this report in Table 3-1 above).

Table 3-2 Significance of matrix estimation changes

Measure	Significance Criteria
Matrix zonal cell values	Slope within 0.98-1.02 Intercept near 0 R ² in excess of 0.95
Matrix zonal trip ends	Slope within 0.99-1.01 Intercept near 0 R ² in excess of 0.98
Trip length distributions	Means within 5% Standard Deviations within 5%
Sector to sector level matrices	Difference within 5%

3.4 Methodology for Comparing Counts and Flow

- 3.4.1 The local model observed traffic counts are taken from the set used in SINTRAM72 modelling, of which there were circa 3,500 one-way counts. These counts were taken in the period 2011 to 2016. Those older than 2012 were given a lower count-weighting.
- 3.4.2 Flows should not change too much unless the counts are situated next to major land use change in the interim. Change in flow from year to year is also highly dependent on capacity. For example, a link at capacity is unlikely to have flow increase if demand exceeds or equals supply, but a link with spare capacity is more subject to growth. Nevertheless, if the road is a minor road, it is likely that other count data will not exist in that location.

- 3.4.3 Of the 3,545 counts in SINTRAM72, 903 relate to the local model highway network, with nearly 320 being situated within Surrey Heath. As described below, flow validation is based on 626 counts from across the subarea.
- 3.4.4 This total large number of counts, and their distribution on the highway network, is due to the wide sources of traffic count data that have contributed to the set. These include counts produced by DfT, Highways England, Surrey CC, as well as counts commissioned for individual concerns. The count data has also been observed by different means, both instrumented and manual, and across widely varying numbers of days. These differences are encoded via 'confidence level' factors³ that are used in matrix estimation.
- 3.4.5 These different forms and sources of collection also vary in how, and the extent to which, traffic is classified by the vehicle types used in the modelling of car, LGV, and HGV.
- 3.4.6 Where counts have not been classified, or only in a limited way, then estimates have had to be made of the numbers of cars, light, and heavy good vehicles associated with each count site and for each time period.

3.5 Motorway and Trunk Road Mainline Counts

- 3.5.1 Simple inspection of the count data on the motorway and trunk road network, of the M25 and A3, reveals a number of inconsistencies that cannot be resolved by any feasible set of modelled flows. For these roads, the peak hour counts are less than the experienced levels of congestion imply. The reason for this is readily accounted by the extensive queueing present at the start of the modelled periods, where long stretches of 4 and 3-lane motorway and trunk road can store up to 2,000 vehicles in a 2km stretch. Peak hour queueing occurs, of course, elsewhere in the network, but the discrepancies between counted flows and travel demand are most significant for these roads.
- 3.5.2 For this reason, peak hour motorway and trunk road mainline count data has largely been discounted in the modelling and validation. Instead, reliance is placed, in the first instance, on the demand placed on the motorways by the 'prior' matrices, that is, the demand as derived by SINTRAM72. This demand is calculated from wide-ranging data sources, but is partly based on average-hourly 3-hour counts for each of the AM and PM periods, and then subject to 'peak hour' adjustment factors. On this account, the prior estimates for the motorway flows (notably at the entry and exit points) may be considered to be reasonably representative.
- 3.5.3 Another source of assessment of appropriate motorway flow demand is provided by journey time data (as described later in Section 3.10). Through flow-delay relationships, these can provide fair indicators of travel demand.
- 3.5.4 A further source of the assessment of motorway demand, given that these motorways are typically highly congested in the peak hours, is provided by noting the maximum counted flows and the capacity of the motorways, as defined by consideration of COBA relationships and the number of lanes. For this, the highest observed values, for the entire morning and afternoon, were sourced from the Highway England's WebTRIS database, where the data was available. This provided 42 assessed counts as set out in Table 3-3. As can be see there was

³ Confidence levels vary between 0.0 ('no confidence') and 1.0 ('full confidence'). The range applied in practice varies from 0.6 to 0.9, largely depending on the data collection type and numbers of repeated observations.

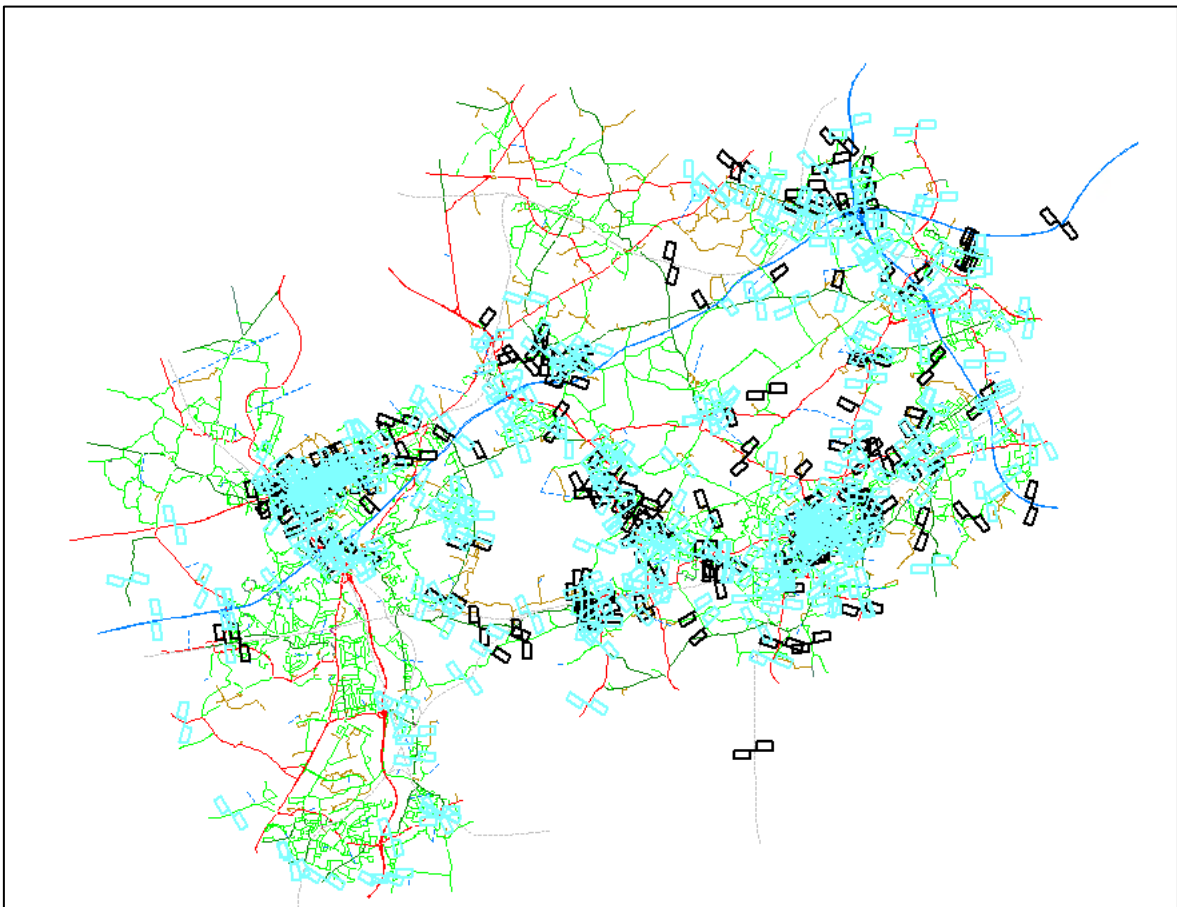
limited data available. There is no valid data between the junctions on the M3 Westbound, or between Junction 12 and 11 on the M25 Anticlockwise.

Table 3-3 Motorway and trunk road mainline assessed counts

Count Nr	Description	Link Nr
3588	M25 Anti-clockwise Junction 11 - Junction 10	263305
1594	M25 Anti-clockwise Junction 11 Access	77245
1650	M25 Anti-clockwise Junction 11 Exit	90206
1691	M25 Anti-clockwise Junction 12 to M3 Junction 2	334342
1694	M25 Anti-clockwise Junction 13 – Junction 12	335270
1595	M25 Anti-clockwise within Junction 11	333033
3587	M25 Anti-clockwise within Junction 12	334327
3584	M25 Clockwise Junction 10 - Junction 11	263304
3585	M25 Clockwise Junction 11 - Junction 12	72422
1649	M25 Clockwise Junction 11 Access	90201
1593	M25 Clockwise Junction 11 Exit	77242
1695	M25 Clockwise Junction 12 – Junction 13	335181
1584	M25 Clockwise Junction 12 Exit	77307
1687	M25 Clockwise Junction 12 to M3 Junction 2	330510
1686	M25 Clockwise Junction 12 to M3 Junction 2	121170
3586	M25 Clockwise within Junction 12	90325
1592	M25 Clockwise within Junction 11	333030
3575	M25 J12 Anti-clockwise Access	77313
3580	M3 Eastbound Junction 2 – Junction 1	335380
1682	M3 Eastbound Junction 2 to M25 Junction 12	334119
3578	M3 Eastbound Junction 3 – Junction 2	329303
3577	M3 Eastbound Junction 4 – Junction 3	783
2215	M3 Eastbound Junction 4 - Junction 4a	333160
2216	M3 Eastbound Junction 4a – Junction 4	331229
2198	M3 Eastbound Junction 4a – Junction 5	329443
2199	M3 Eastbound Junction 5 – Junction 4a	329446
3579	M3 Eastbound within Junction 2	121183
3133	M3 Eastbound within Junction 3	328412
3576	M3 Eastbound within Junction 4	6553
2209	M3 Eastbound within Junction 4a	330251
3132	M3 Junction 3 Eastbound Exit	4113
3309	M3 Junction 3 Westbound Exit	4116
2242	M3 Junction 4 Eastbound Exit	2568
2251	M3 Junction 4 Westbound Exit	333361
2210	M3 Junction 4a Eastbound Exit	330216
2213	M3 Junction 4a Westbound Exit	330222
3581	M3 Westbound Junction 1 – Junction 2	335365
1688	M3 Westbound Junction 2 to M25 Junction 12	77315
3582	M3 Westbound within Junction 2	121182
3131	M3 Westbound within Junction 3	328426
3583	M3 Westbound within Junction 4	46292
2208	M3 Westbound within Junction 4a	330226

- 3.5.5 Therefore, although the motorway and trunk road counts are not used directly, it is possible to form a view of the 'assessed' demand against which the modelled flows may be considered. On this basis and noting the largely accurate modelling of motorway travel times described in Section 3.10, it is possible to assert confidence in the motorway flows indicated by the prior trip matrices.
- 3.5.6 Modelling motorway and trunk road flow levels adequately is significant, as they carry flows that are ten times those of many roads in the rest of the local model network. Thus, errors of 10% in motorway counts and related routings can correspond to 100% of many local counts.
- 3.6 Count Selection
- 3.6.1 Although not a concern for much of Surrey Heath, there is a sufficient density of counts that inconsistencies between adjacent and nearby counts are manifest. In some cases, these discrepancies may reasonably be associated with queueing effects reducing the apparent demand (as per motorways but on a smaller scale), but in other cases the reasons are not clear.
- 3.6.2 Sets of counts have therefore been defined respectively for matrix estimation and for flow validation. These sets are selected in terms of 'reliable' counts for which 652 counts are used for matrix estimation. As shown in Figure 3-1, these count sites are indicated by the turquoise rectangles.

Figure 3-1 Matrix estimation count sites



- 3.6.3 TAG Unit M3 specifies the use of another set of counts for validation purposes that are not used in matrix estimation. This is problematic for several reasons: if the 'validation' counts differ from the 'estimation' counts then they should be included in

the estimation set if the differences imply additional information that should not unreasonably be withheld from the estimation. If the differences arise because of observation errors, then they are not fair validation tests.

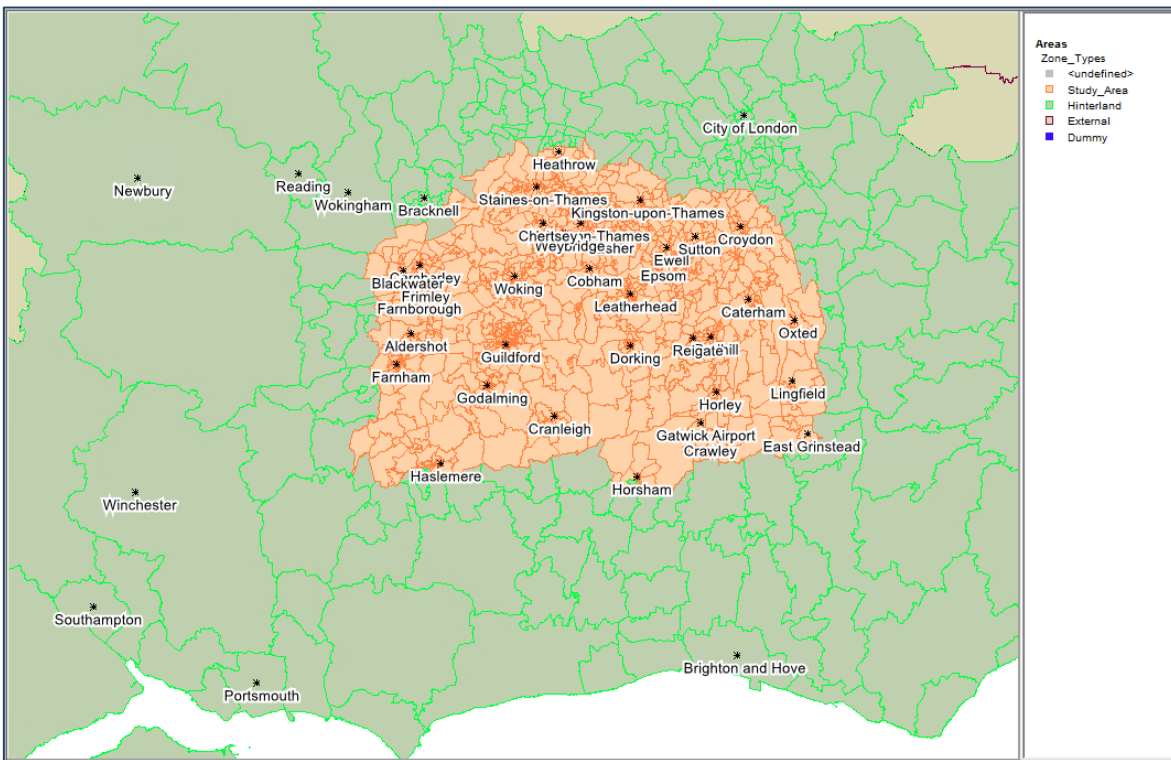
- 3.6.4 For these reasons, the assessment of model flows is confined to the 652 counts that have passed the quality threshold of 'reasonably self-consistent'. The full set of 903 counts is retained in the model so that variances with modelled values can be inspected.
- 3.6.5 The number of 652 counts is still large for the size of the Surrey Heath network, so any broad level of agreement, coupled with the established provenance of the prior OD matrices, provides strong assurance that the model reflects base year travel patterns.

3.7 Development of SINTRAM72 Base Matrices

- 3.7.1 The starting point for the Local Model base matrices is provided by the base matrices in the SINTRAM72 model, with 2014 being the base year in both cases.
- 3.7.2 The zones in the SINTRAM72 model are categorised as: (*Inner*) *Study Area*: zones 1 – 1325; (*Hinterland*): zones 1326 – 1553; and (*External*): zones 1554 – 1595.
- 3.7.3 A set of zones are classified as 'Dummy' zones and used for representing developments on major 'greenfield' sites⁴; these bring the total number of zones in the SINTRAM72 model to 1615.
- 3.7.4 Figure 3-2 shows the Study Area and Hinterland zones in the context of the south-east of England. As is clearly shown, the Hinterland zones (green boundaries) are much larger than the Study Area zones.

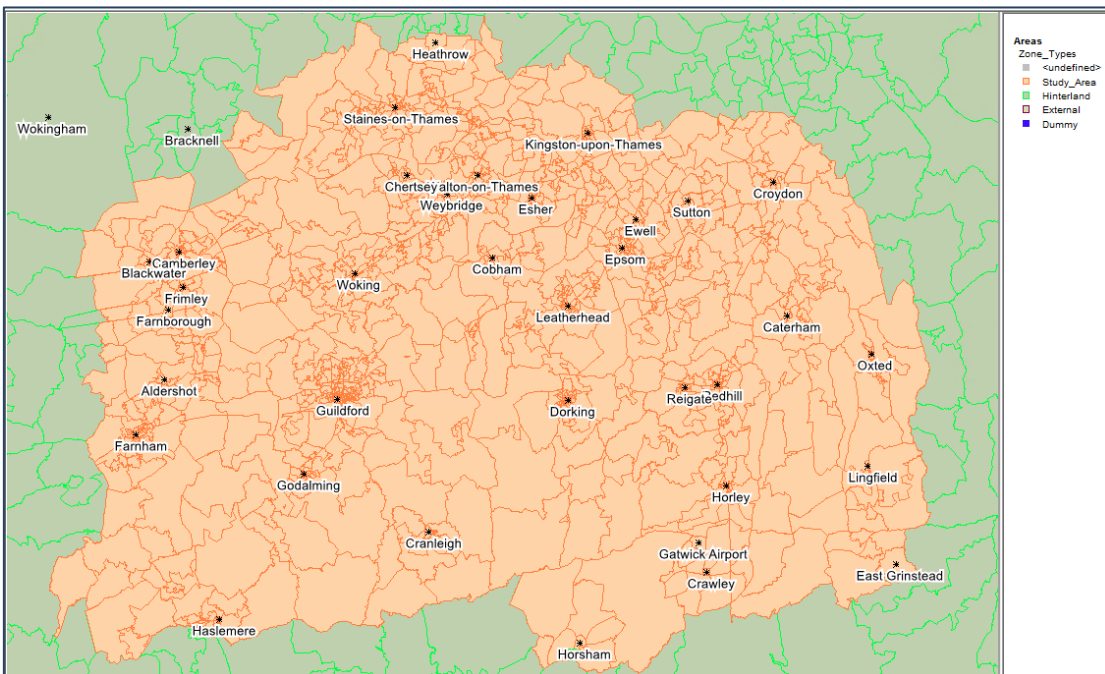
⁴ 'Greenfield' should be interpreted here as (largely) vacant sites subject to significant land use change, thus including 'brownfield' sites.

Figure 3-2 Study area, hinterland, and external zone areas



3.7.5 Figure 3-3 below shows a more detailed view of the SINTRAM72 zoning in the Study Area.

Figure 3-3 Detail of study area zoning



3.7.6 The development of the SINTRAM72 base matrices involved a complex and comprehensive process, reported in *SINTRAM72 Technical Notes TN2 and TN3*.

3.7.7 The process starting point is the set of trip ends calculated from CTripEnd v7.2, but with locally defined 2014 ONS mid-year population data, and 2014 Nomis

employment data for the study area. This data corresponds to standard update estimates of 2011 ONS Census data. Hinterland and External zones use data provided by CTripEnd. Information on this aspect is provided in *SINTRAM72 Technical Note TN1*.

- 3.7.8 The trip end data is used, together with National Travel Survey (NTS) information for the South East, to synthesise a full set of Production-Attraction (PA) matrices for different trip purposes and travel modes. The PA matrices reflect 'tours', rather than trips, in which trips outbound from home imply return trips to home later in the day.
- 3.7.9 The base matrix development process uses a broad range of observed data to enhance the initial synthesised matrices. This is done first for PA matrices (e.g. using Census Travel to Work data) from which a set of Origin-Destination (OD) trip matrices are derived. OD matrices define travel patterns for particular periods of the day and include outbound and return trips, as well as non-home based (NHB) trips. These OD matrices are revised using varied datasets but including GPS-based observations of car travel patterns.
- 3.7.10 Traffic count data is also used to enhance the OD matrices. This is via the same matrix estimation procedure applied to the Local Model matrices, but in the case of SINTRAM72 matrices the matrix estimation is only used to influence travel patterns, not scaling of the numbers of trips. This is because SINTRAM72 matrices are constrained to trip rates by purpose (with the trip rates originating from NTS data).
- 3.7.11 The comprehensive assessment of the SINTRAM72 base matrices that is reported provides evidence that the properties of the base matrices, such as trip length distributions match expectations, and that the different sources of updating information have effects commensurate with their assessed levels of precision and accuracy.
- 3.7.12 The SINTRAM72 OD matrices for goods vehicles (LGV and HGV types) are much less robustly based and rely largely on matrix estimation.

3.8 Development of Local Model Base Trip Matrices

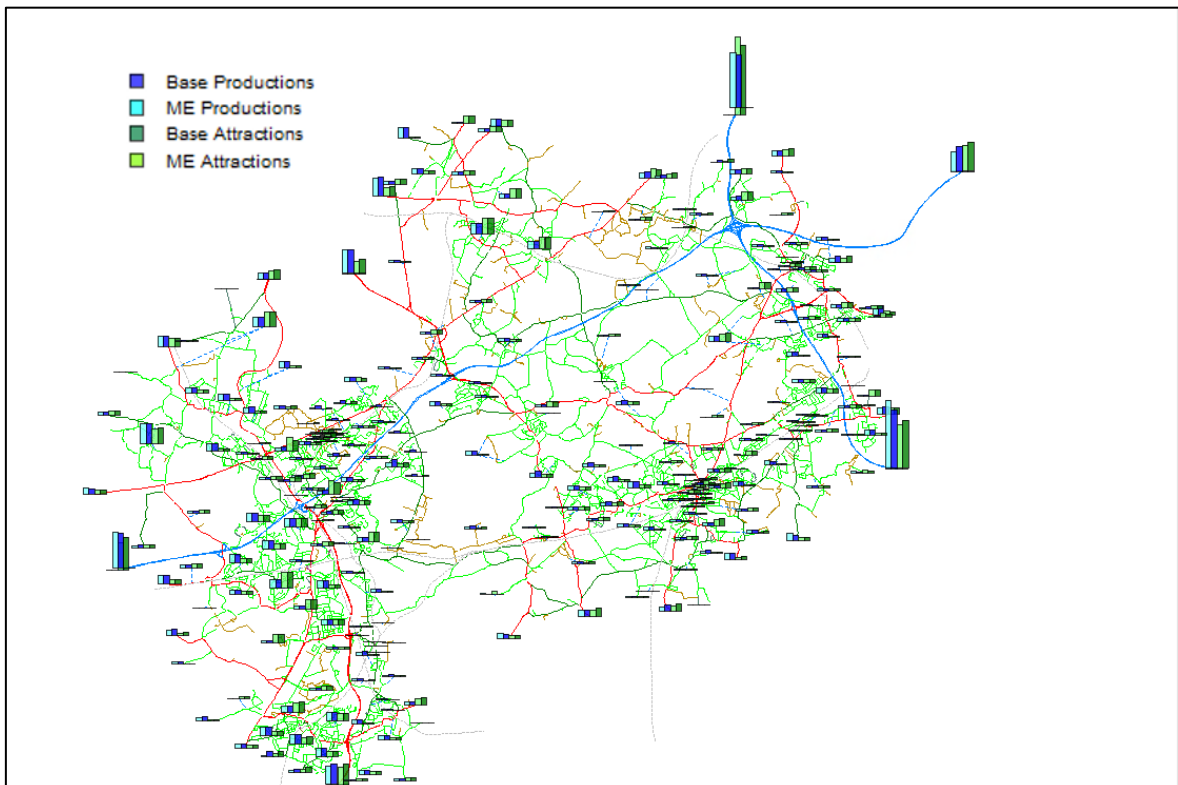
- 3.8.1 In accordance with best practice the changes resulting from matrix estimation are monitored and assessed to ensure that the prior matrix is not being excessively distorted. This section describes the trip matrices before and after matrix estimation using the following analyses:
- matrix totals by user/vehicle class;
 - statistical analysis of change in trip ends; and
 - statistical analysis of change in trip length distributions.
- 3.8.2 Criteria for the assessment of matrix estimation changes are set out in TAG Unit 3.1 Table 5 which is re-produced for reference in Table 3-2.
- 3.8.3 The Local Model base trip matrices use traffic count data and matrix estimation provided by OmniTRANS to update prior OD matrices generated from SINTRAM72. The location of the 652 traffic counts used in the estimation is indicated above in Figure 3-1, which shows the sites as turquoise rectangular symbols.
- 3.8.4 The major assurance for the quality of the local matrices is provided by their provenance as extracts of SINTRAM72 matrices. In general, the Local Model matrix estimation alters the matrices, but only to a relatively limited extent, so that travel patterns are not markedly altered. This is illustrated in Figure 3-4 to Figure 3-7, which

displays origin (blue) and destination (green) trip ends for the base prior (darker) and the final matrix estimation ('ME', lighter) cases⁵.

3.8.5 Figure 3-4 compares the prior and matrix estimation car trip ends for the entire Local Model for the AM peak hour, and a close-up view of Surrey Heath is provided in Figure 3-5. Similarly, Figure 3-6 and Figure 3-7 present comparisons for the Local Model and Surrey Heath, but for the PM peak hour.

3.8.6 It can be seen that there is very little change overall, with more change occurring at the cordon edge, specifically on the external zones at either end of the M25 and the A3. This coincides with these corridors carrying some of the greatest volume of trips in the model. In both the AM and PM peak hours, there is a general increase in car trip ends arising from matrix estimation.

Figure 3-4 Prior versus ME car trip ends for the AM peak hour (0800 – 0900), Local Model



⁵ Some zones are shown with no trip ends. These correspond to future 'Greenfield' sites which, correctly, do not have base year trips.

Figure 3-5 Prior versus ME car trip ends for the AM peak hour (0800 – 0900), Surrey Heath Borough

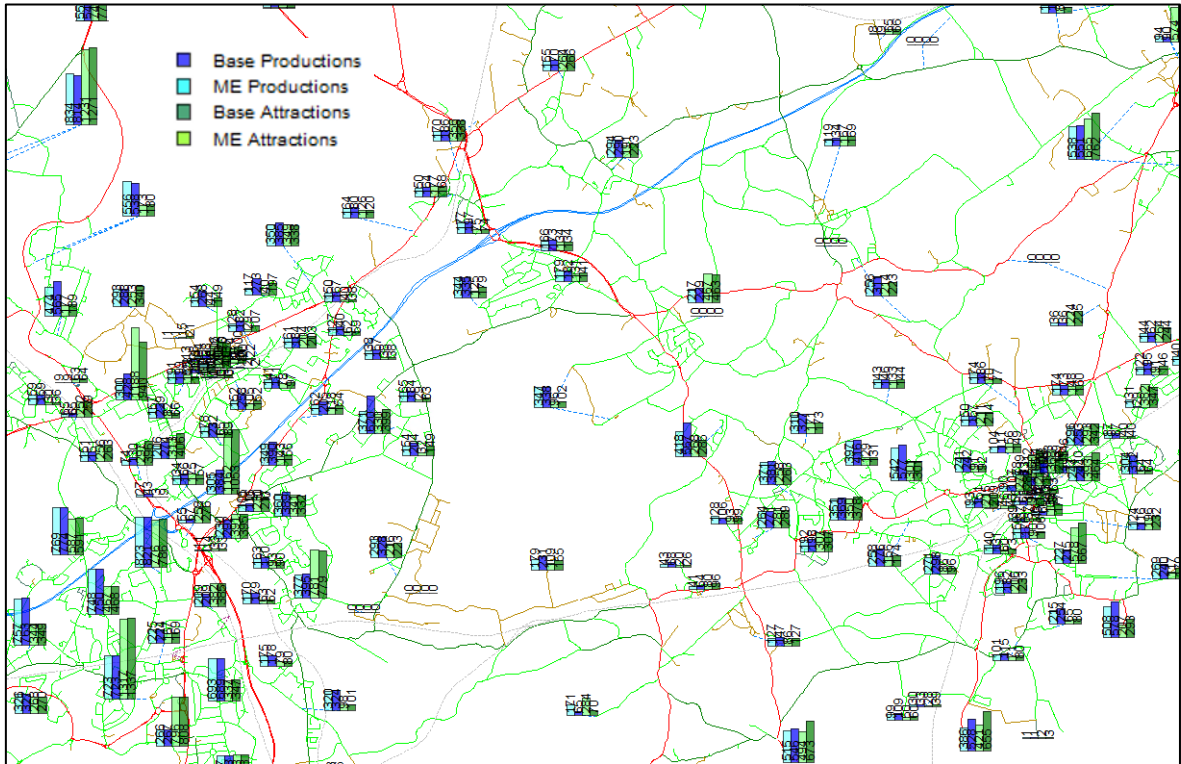


Figure 3-6 Prior versus ME car trip ends for the PM peak hour (1700 – 1800), Local Model

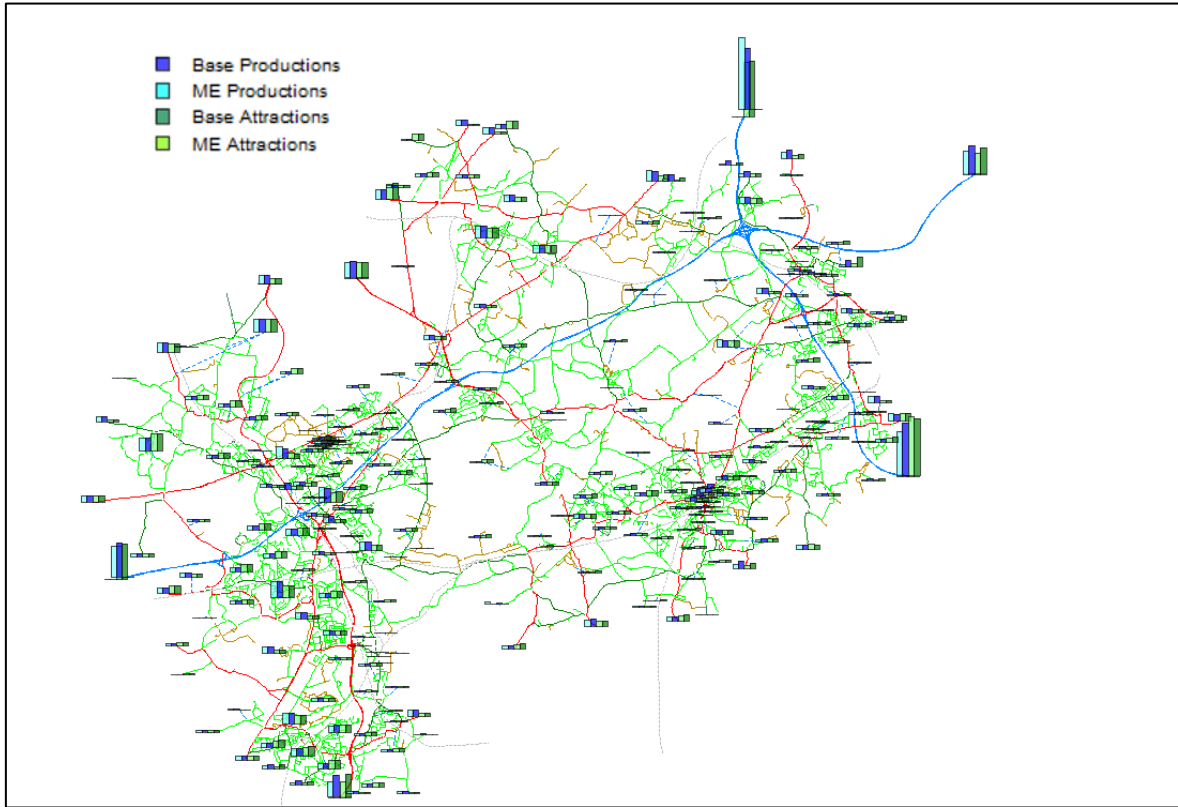
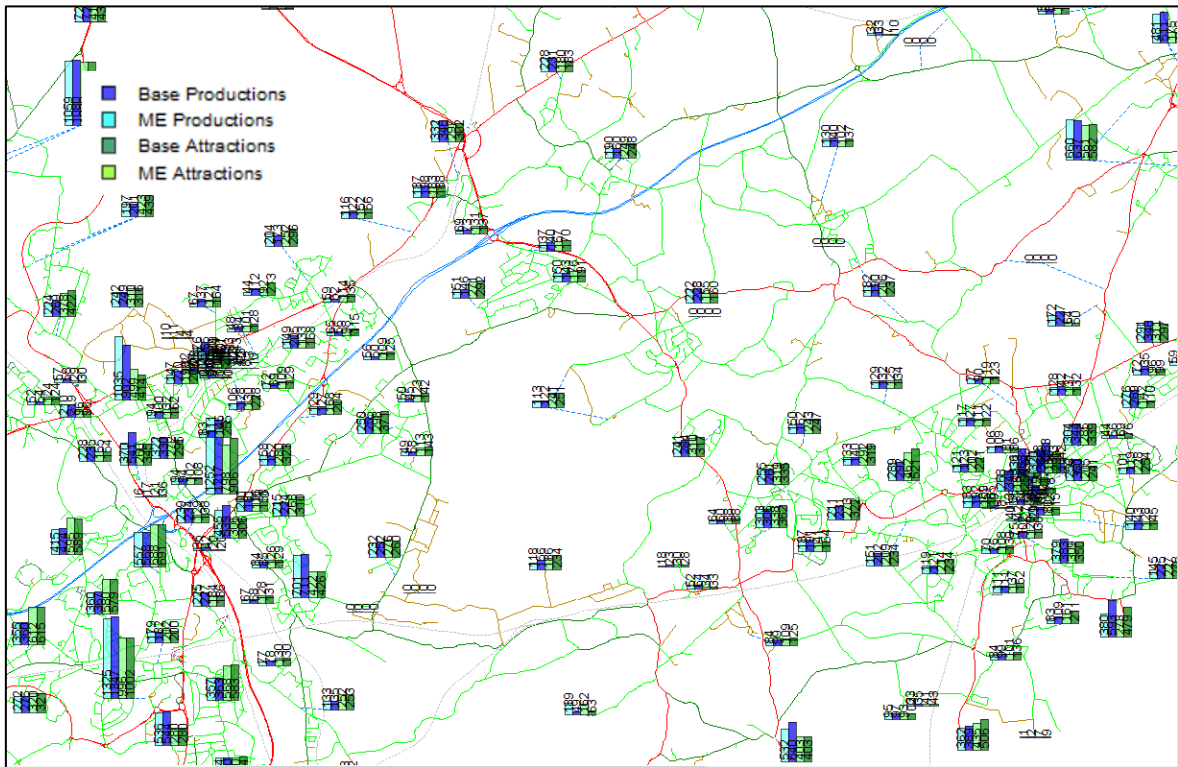


Figure 3-7 Prior versus ME car trip ends for the PM peak hour (1700 – 1800), Surrey Heath Borough



3.8.7 Consideration of the trip matrix totals, presented in Table 3-4 below, shows the total volume of trips changing by around 1% in the AM and 5% in the PM case. Table 3-4 gives values for the prior matrices (as generated by SINTRAM72) and the final matrix estimated matrices.

Table 3-4 Prior and ME final matrix totals.

Matrix Type	Cars	LGV	HGV	All Vehicles	% of Original Total
<i>AM Peak Hour (0800 - 0900)</i>					
Prior matrix	82,078	31,124	4,308	117,510	100%
ME Matrix	86,265	27,878	4,685	118,828	101%
<i>PM Peak Hour (1700 - 1800)</i>					
Prior Matrix	74,801	20,367	2,393	97,560	100%
ME Matrix	80,607	18,503	3,462	102,571	105%

3.8.8 The primary purpose of matrix estimation is to refine prior matrices, and such refinements should be sufficiently small that they are not regarded as significant. The limits set out in relation to matrix estimation changes listed in Table 3-2 (TAG unit M3-1 Table 5) and have been discussed below.

3.8.9 Matrix zonal cell values have been presented below with the prior matrix against the post ME matrix as can be seen in Figure 3-8 and Figure 3-9.

3.8.10 In the AM, the slope is just below the 0.98 to 1.02 range; the intercept is close to 0; but the R² is short of 0.95. In the PM the slope is within 0.98 and 1.02; the intercept is close to 0; the R² is further away from 0.95 than it is in the AM.

Figure 3-8 Car AM matrix cell zonal values

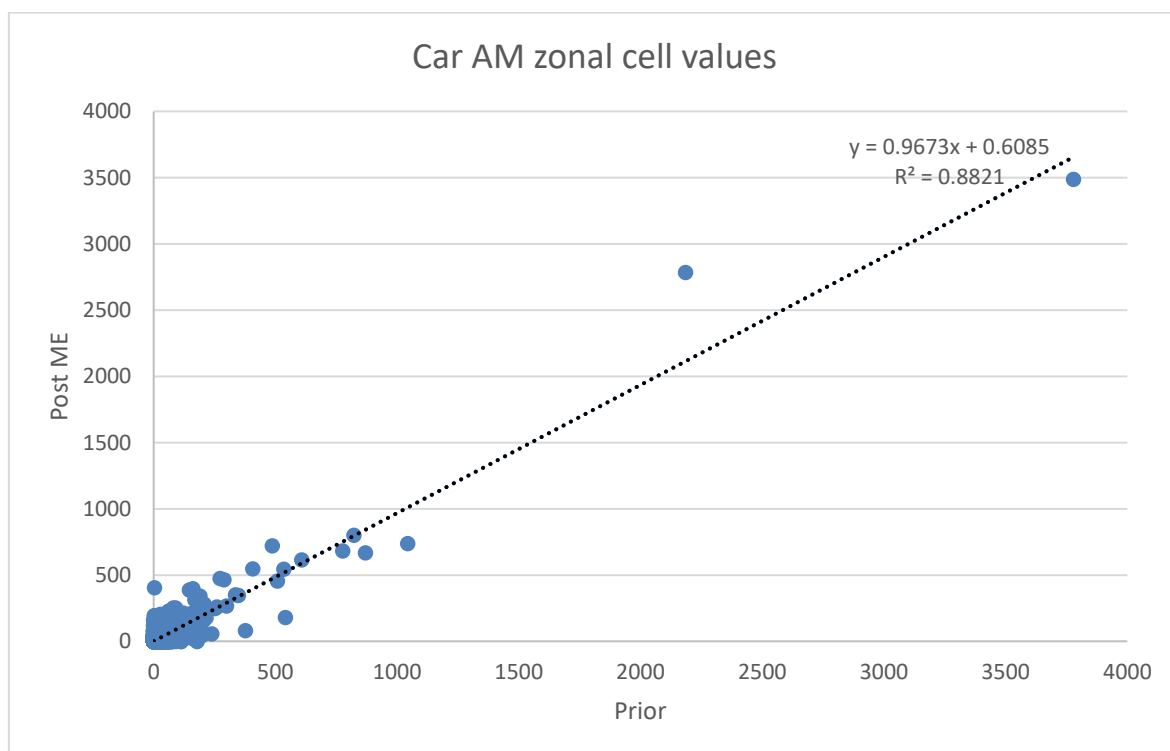
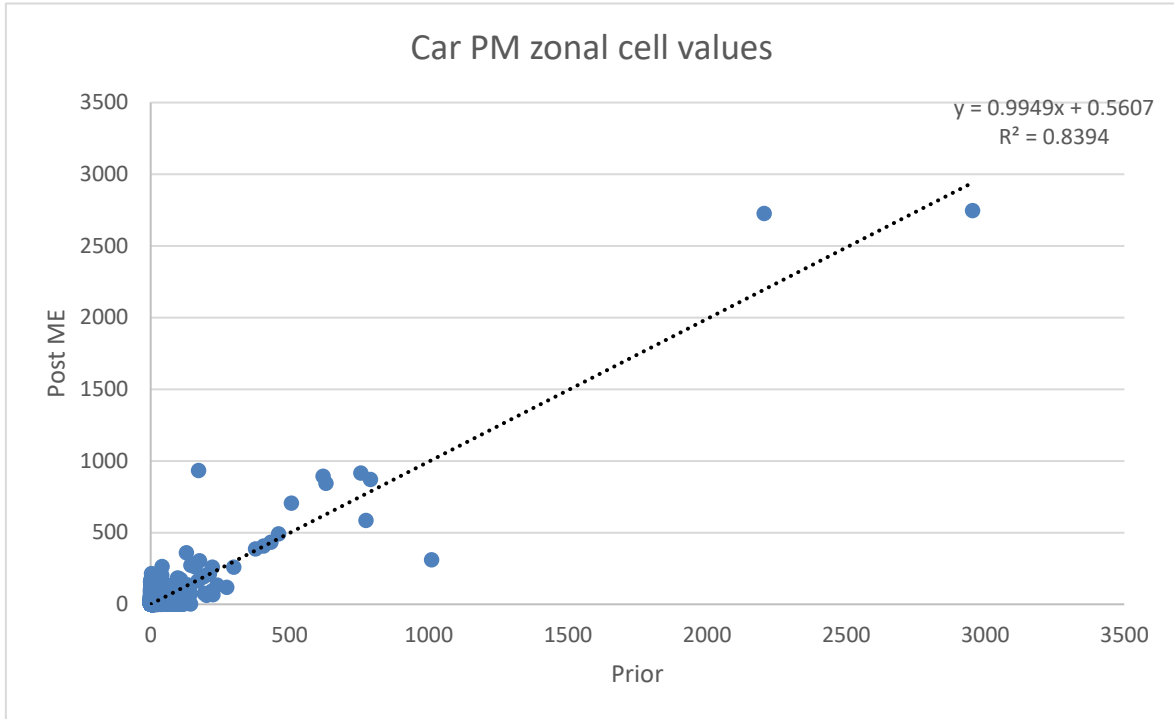


Figure 3-9 Car PM matrix cell zonal values



3.8.11 Matrix zonal trip ends have been presented below with the prior matrix against the post ME matrix as can be seen in Figure 3-10 and Figure 3-11.

3.8.12 In the AM, the slope is just 0.0209 away from 0.98; the intercept is fairly close to 0 for the size of this model; and the R^2 is in excess of 0.98. In the PM the slope is within 0.99 and 1.01; the intercept is slightly nearer to 0 than the AM, but this is close for the size of this model; the R^2 is close to 0.98, only 0.0065 away.

Figure 3-10 Car AM matrix zonal trip ends

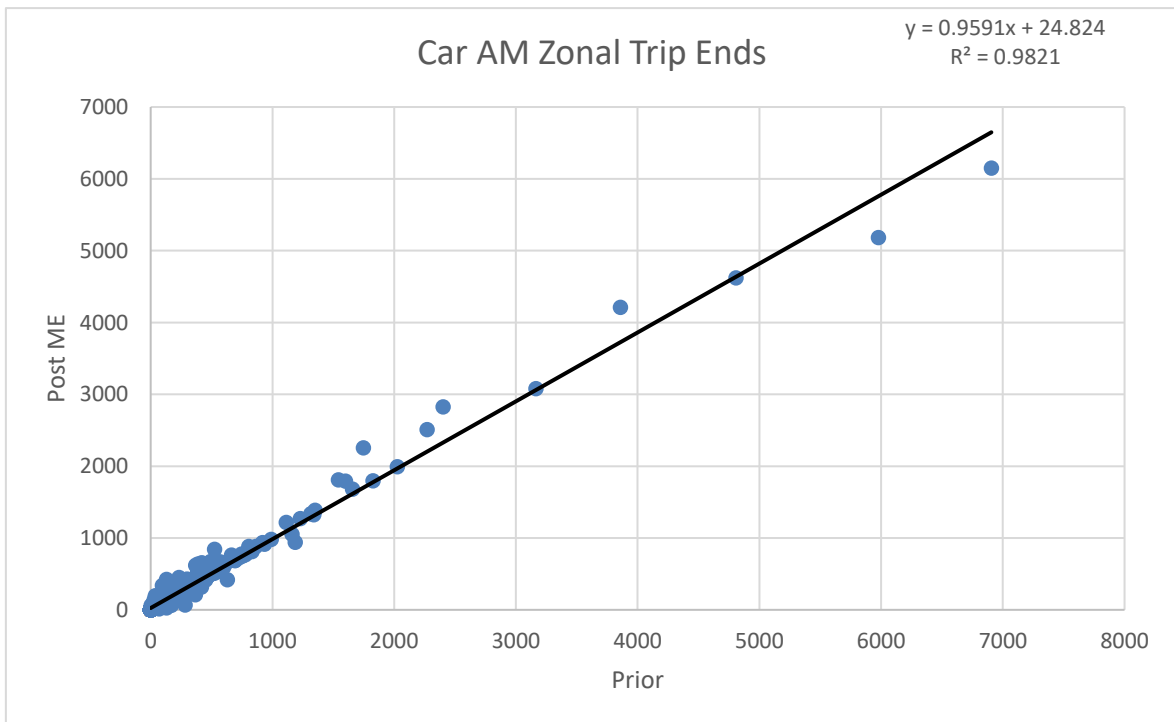
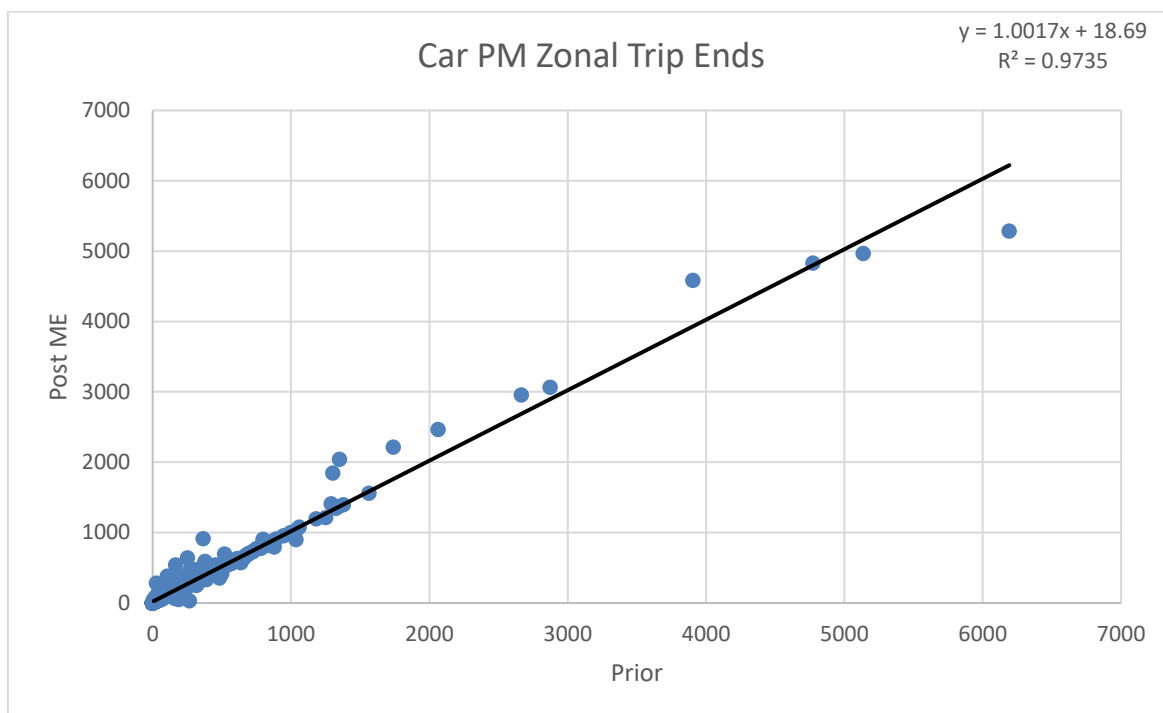


Figure 3-11 Car PM matrix zonal trip ends



3.8.13 The means and standard deviations of the Trip Length Distributions for Car are presented in Table 3-5 for the AM and PM. Note that external to external trips have been excluded since these distort the results.

Table 3-5 Car prior versus post ME trip length distributions

	AM		PM	
	Mean	Standard deviation	Mean	Standard deviation
2014 Prior	6.71	6.66	7.00	7.05
2014 Post ME	7.51	6.46	7.94	6.58
% Change	+11%	-3%	+12%	-7%

3.8.14 The standard deviation is 3% for the AM peak, meeting the TAG criteria although the PM misses it with a 7% change. The mean trip length distributions have a larger percentage difference, with the Post Matrix Estimation matrix having a higher trip length in both time periods and consequently falling outside the TAG criteria. In the Surrey Heath model this may in part be due to the dominance of the high speed M3 in this model and the daily variability of its congestion. On less congested days drivers often take the longer distance, higher speed routes. Nevertheless, Figure 3-12 and Figure 3-13 demonstrate how close the trip length distributions are.

Figure 3-12 Car AM prior versus post ME trip length distributions

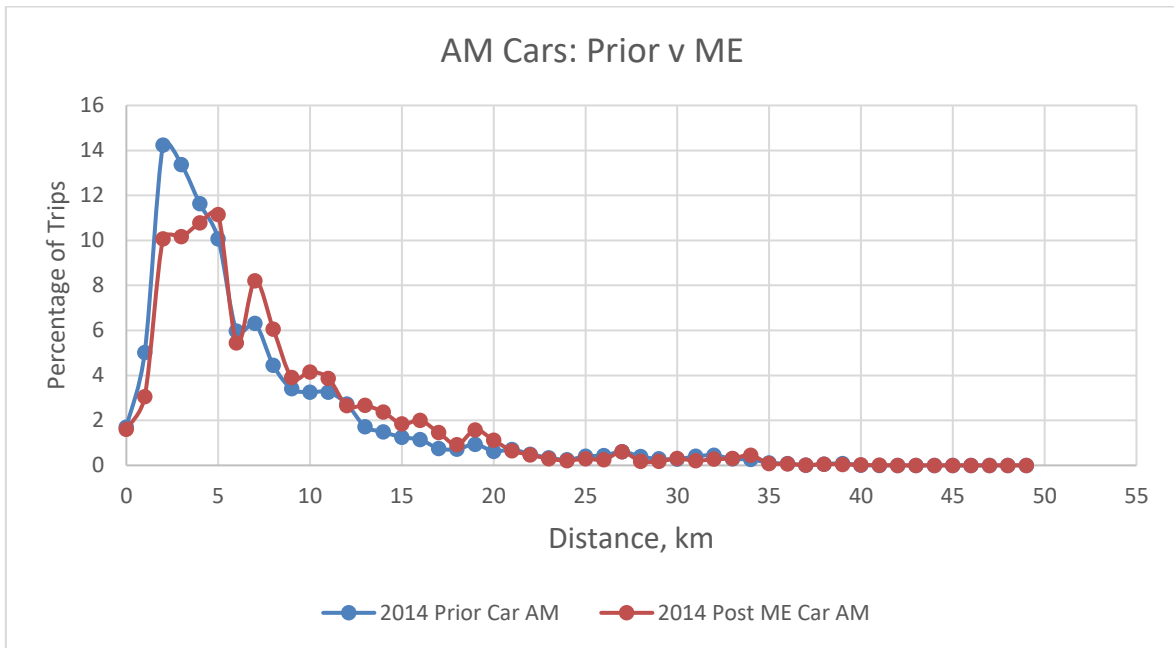
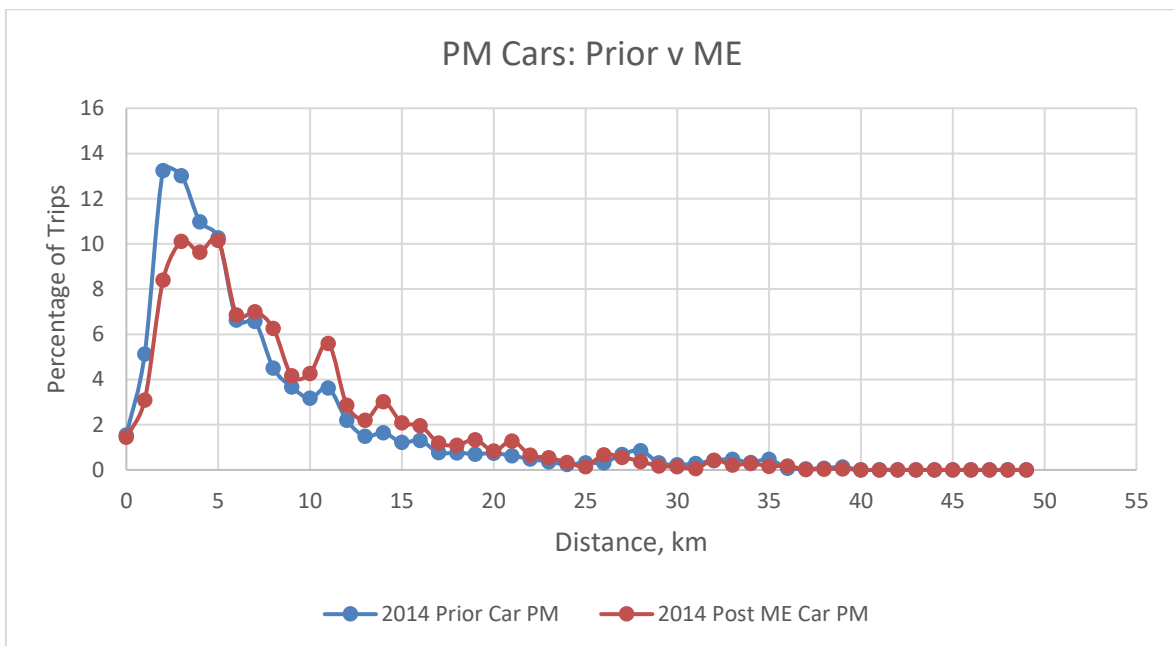


Figure 3-13 Car PM Prior versus post ME trip length distributions

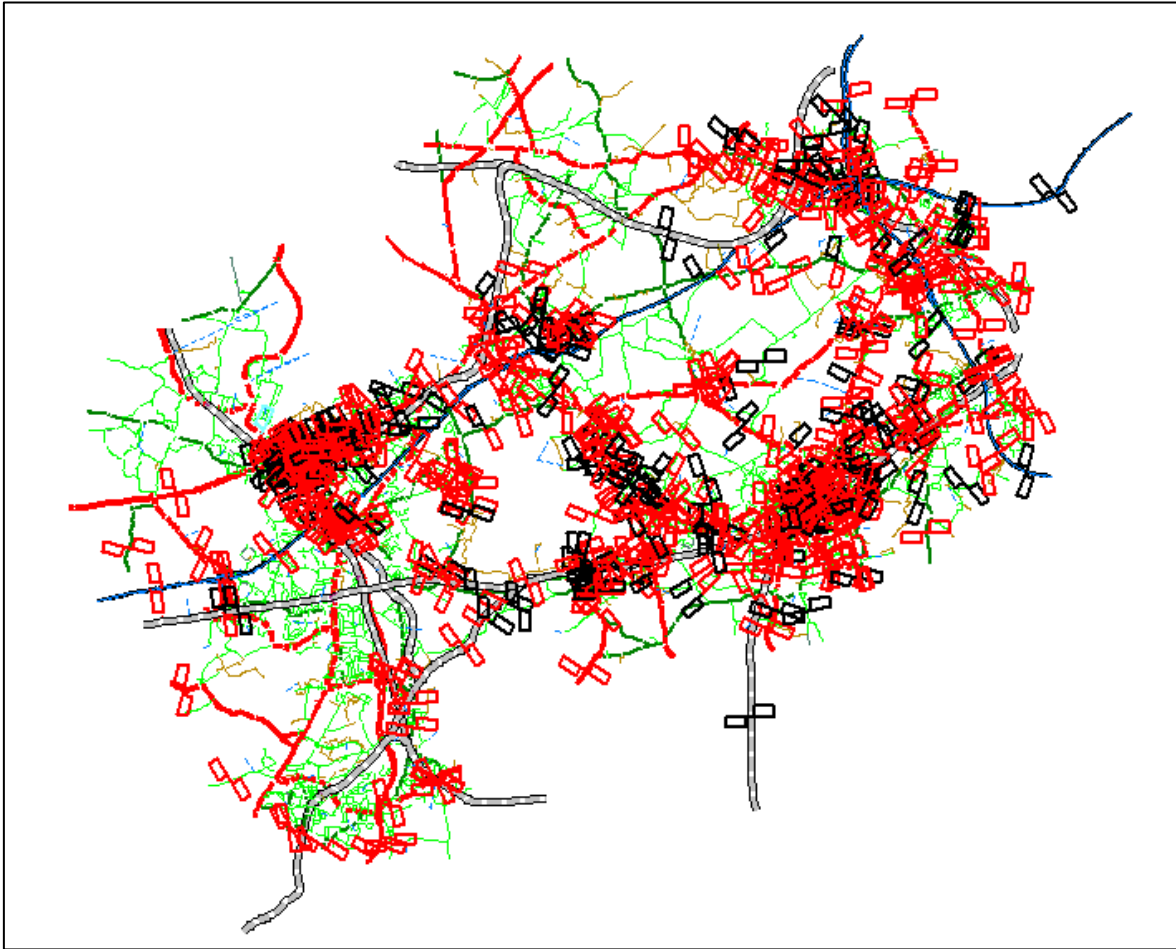


3.8.15 The evaluation of changes to matrix cell values and trip ends between prior and post matrix estimation matrices shows some changes that are above TAG guidance levels. A balance has been struck between achieving sufficient count validation in key areas whilst not undermining the trip distribution. Sector to sector level matrices have not been examined since in effect the Local Surrey Heath Model is a sector of the larger SINTRAM model.

3.9 Link Flow Validation

3.9.1 Figure 3-14 below shows the location, in red, of the 626 one-way count sites, which have been used for validation.

Figure 3-14 Location of all validation count sites



- 3.9.2 Table 3-6 presents the summary of the link flow validation of both the weekday AM and PM peak hours in terms of the Department for Transport's acceptability guidelines.
- 3.9.3 In the AM peak hour 81% of observed movements met the GEH criteria and 84% the flow criteria. In the PM peak hour 78% of observed movements met the GEH criteria and 81% the flow criteria.
- 3.9.4 In both the AM and PM peak hours, the GEH and flow statistics fall just short of the TAG desired acceptance level of 85%. Validation in Surrey Heath and particularly urban areas is considered good. As discussed above in Section 3.8, the validation of a highway assignment model should not only be about achieving the flow validation criteria. This is so that matrix estimation is not relied upon too much and some models where flow validation is not quite met are still fit for purpose.

Table 3-6 Link flow validation results for the Local Model.

	Total Counts	Met GEH		Met Flow		>10	Av. GEH
AM Peak Hour (0800-0900)	625	509	81%	524	84%	28	3.38
IP Average (1000-1600)	612	526	86%	547	89%	16	2.77
PM Peak Hour (1700-1800)	558	433	78%	450	81%	30	3.55

- 3.9.5 Figure 3-15 and Figure 3-16 show the modelled flows plotted against the observed with best-fit regression line and correlation coefficient (R^2), for each model time period. This aids in visualising the goodness of fit. The R^2 values presented indicate that overall, the model reflects observed traffic flows well.

Figure 3-15 Comparison plot of modelled against observed link flows with best-fit regression line and correlation coefficient (R^2) for the weekday AM Peak Hour (0800 – 0900)

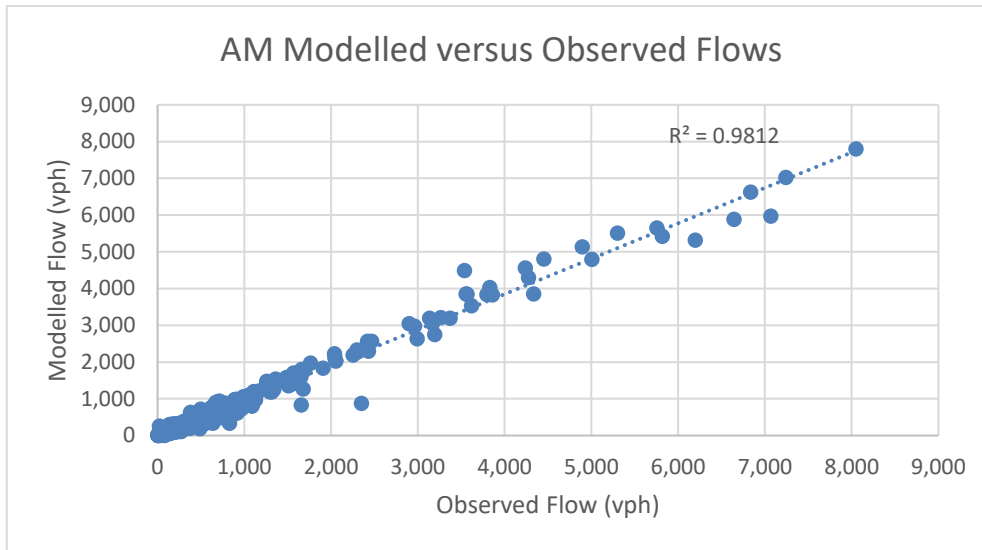
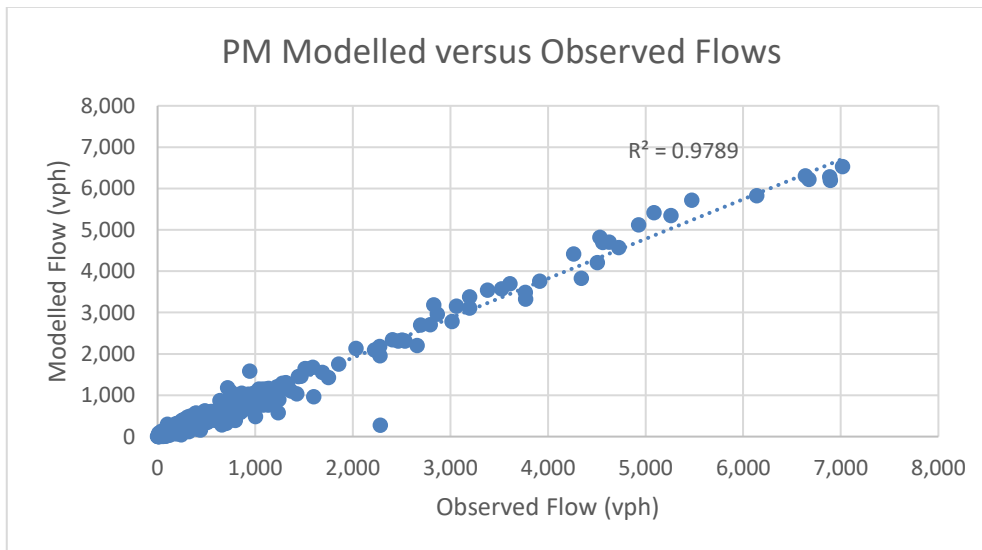


Figure 3-16 Comparison plot of modelled against observed link flows with best-fit regression line and correlation coefficient (R^2) for the weekday PM Peak Hour (1700 – 1800)



3.9.6 The cumulative frequency of GEH, for the AM and PM peak hours respectively, is presented in Figure 3-17 and Figure 3-18. In the AM peak hour 84% of the counts have a GEH of less than 6, whilst for the PM peak the figure is 82%.

Figure 3-17 Graph showing the variation of GEH for the AM peak hour (0800 – 0900)

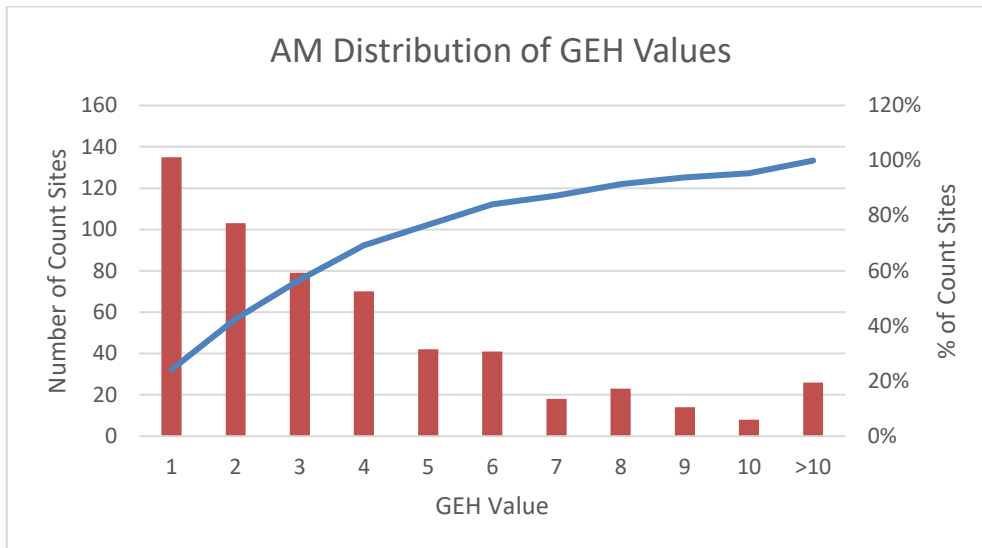
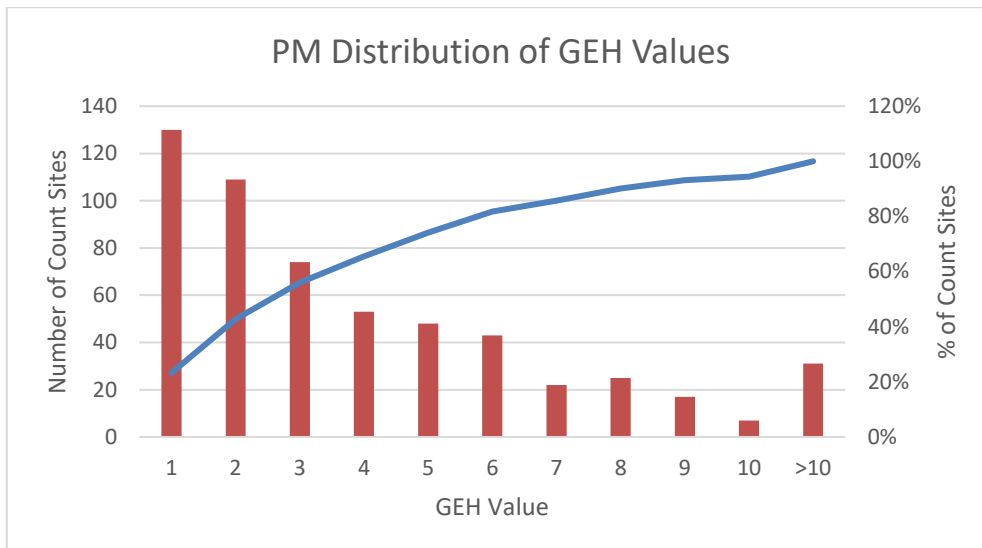


Figure 3-18 Graph showing the variation of GEH for the PM peak hour (1700 – 1800)



- 3.9.7 Figure 3-19 and Figure 3-20 display observed counts versus model flow bandwidths for the AM peak hour. The bandwidths⁶ are proportional to the level of flow. A bandwidth coloured light green indicates that an observed count is present on the link. Where the green bands have an orange edge, the model flow is less than the observed flow. Where the green bands show a dark green edge, the model flow is greater than the observed flow.
- 3.9.8 Figure 3-21 and Figure 3-22 display observed counts versus model flow bandwidths for the PM peak hour.
- 3.9.9 A full comparison of observed and modelled flow for the selected counts is provided in Section 8.1 and Section 8.2 of the Appendix.

⁶ The bandwidths reflect all counts in the model and exclude P&R car flows.

Figure 3-19 Local Model Link Flow versus Count Bandwidth for the AM Peak Hour (0800 – 0900)

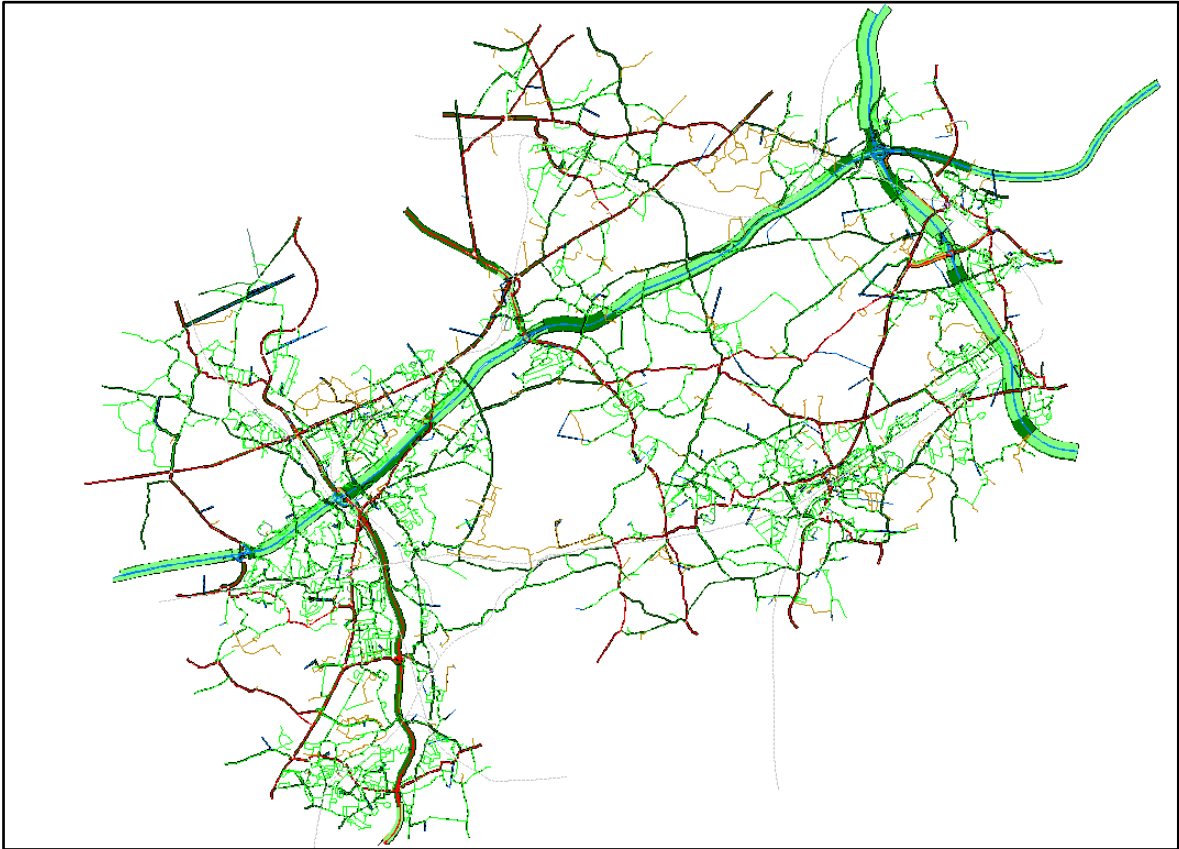


Figure 3-20 Surrey Heath versus Count Bandwidth for the AM Peak Hour (0800 – 0900)

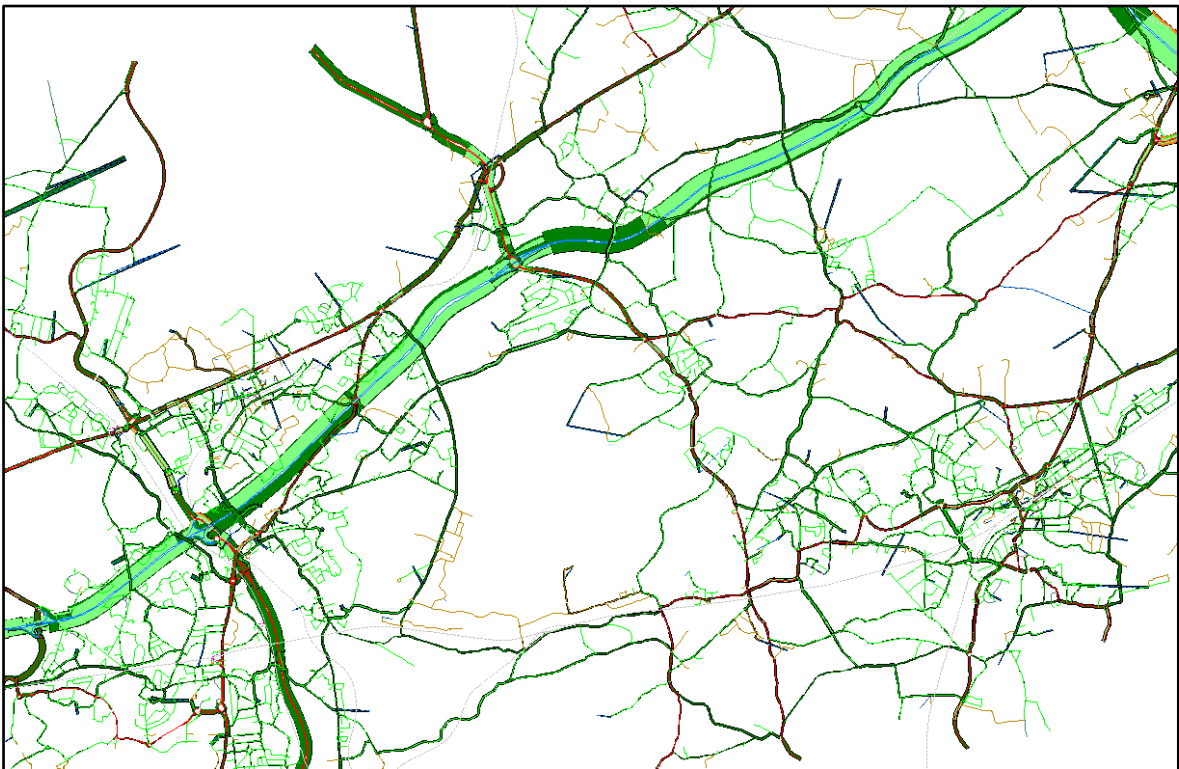


Figure 3-21 Local Model Link Flow versus Count Bandwidth for the PM Peak Hour (1700 – 1800)

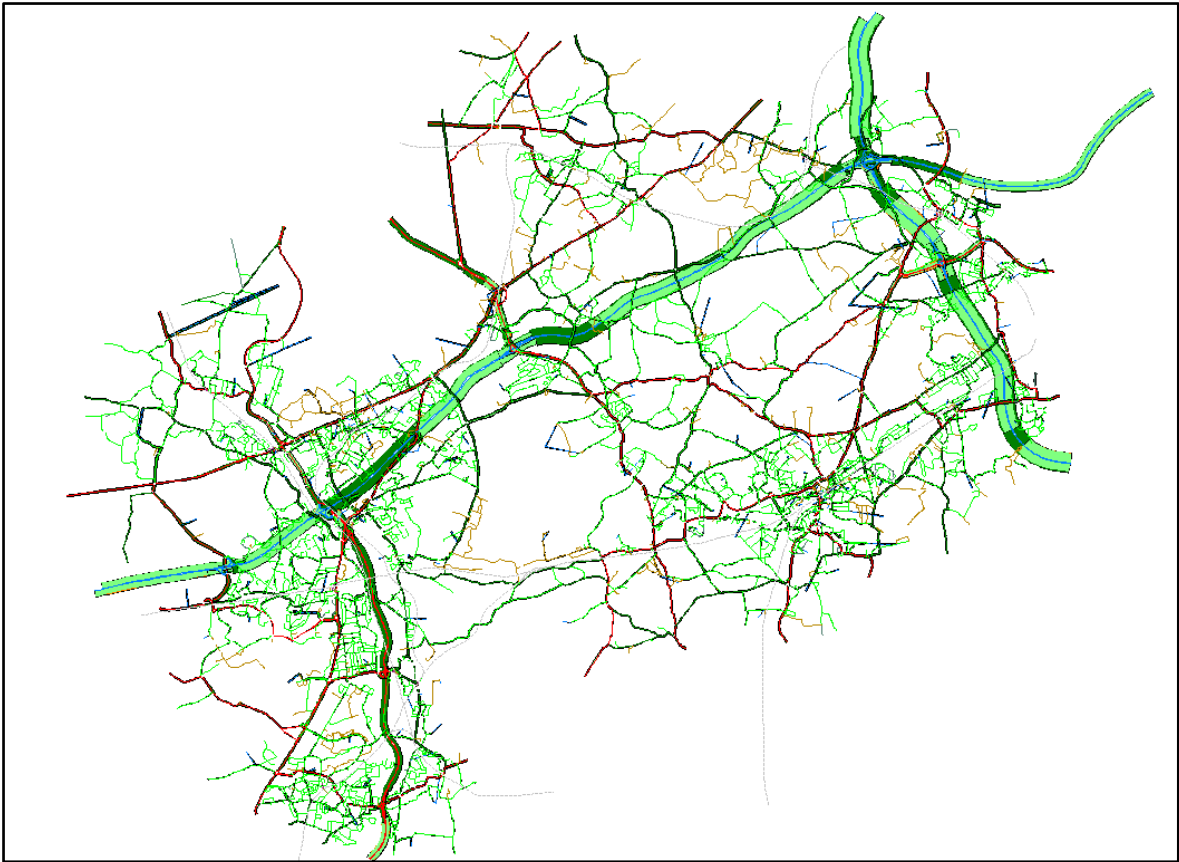
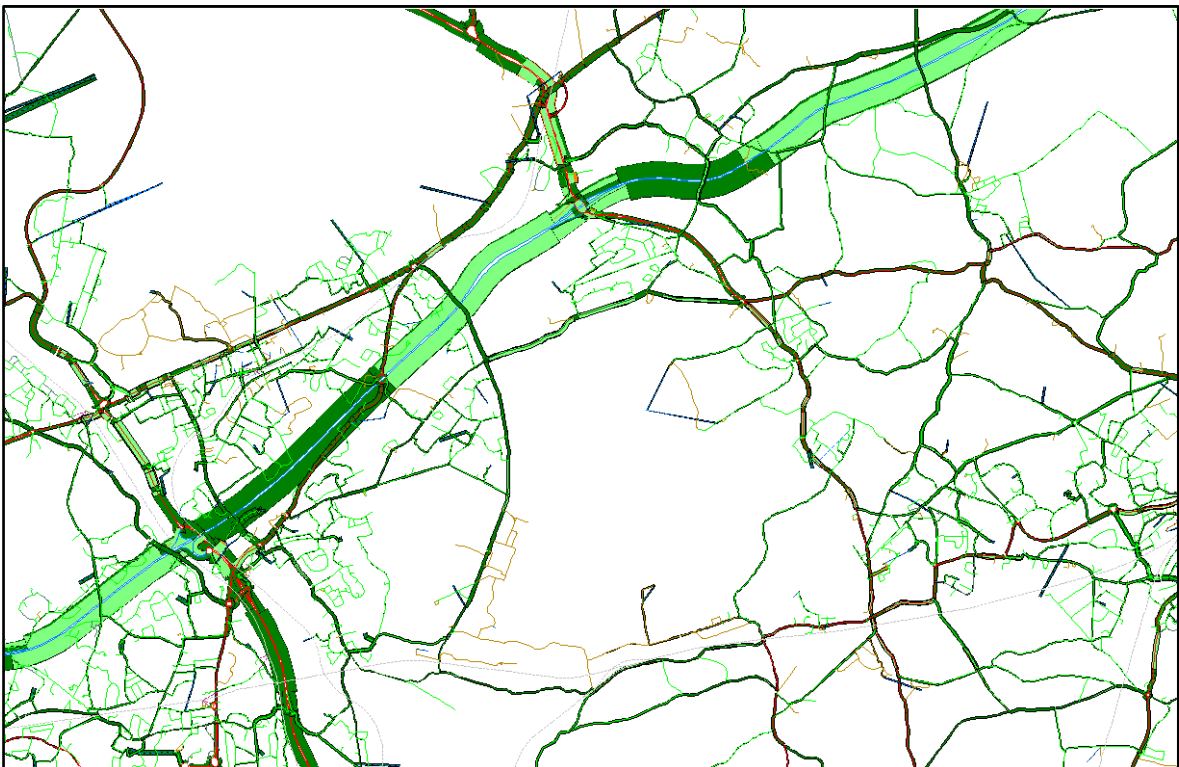


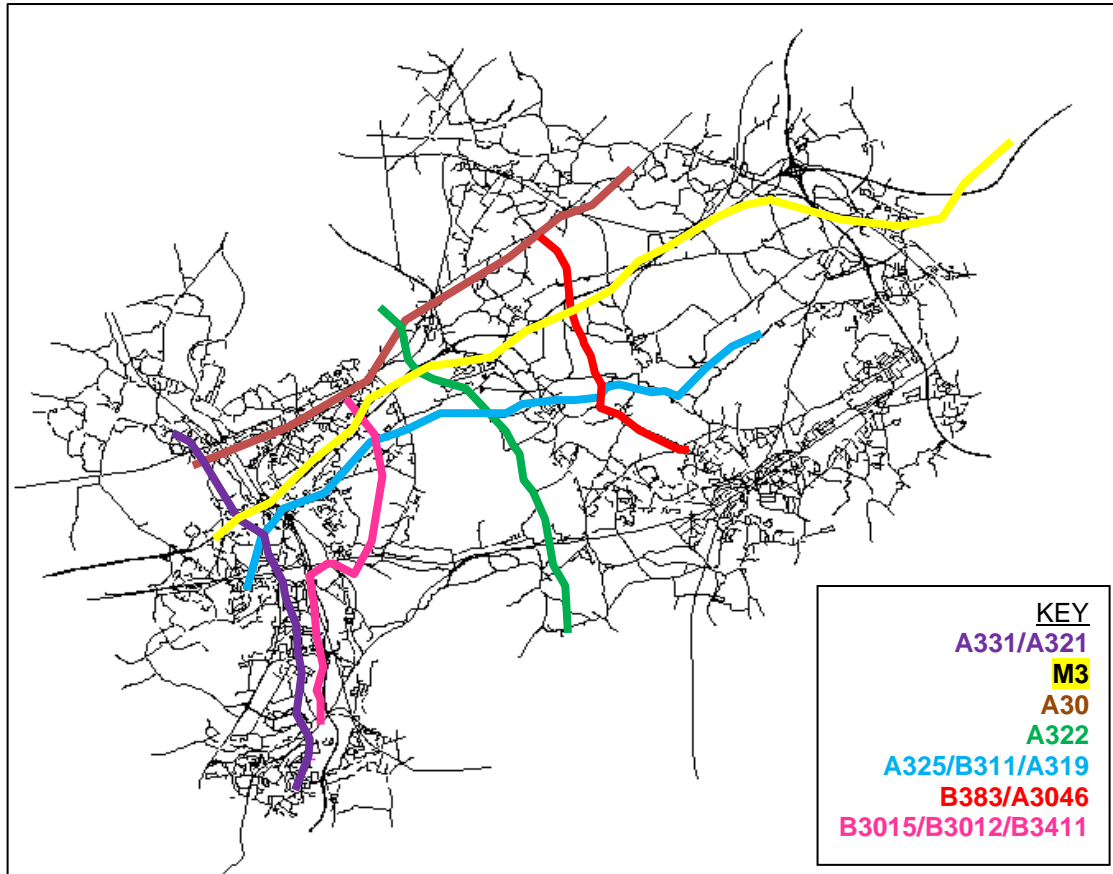
Figure 3-22 Surrey Heath versus Count Bandwidth for the PM Peak Hour (1700 – 1800)



3.10 Journey Time Validation

- 3.10.1 Seven journey time routes have been defined for the purposes of assessing modelled journey times, as shown in Figure 3-23. This implies fourteen one-way journey time routes for two time periods, which equals twenty-eight result sets.
- 3.10.2 The journey time data was acquired from Highways Analyst, developed by Basemap. Highways Analyst uses congestion data supplied by Teletrac-Navman plc that is mapped to the Ordnance Survey (OS) Integrated Transport Network (ITN) in order to calculate journey time by ITN link. The Teletrac-Navman data is obtained from GPS-equipped vehicles traversing the highway, which provides high volume GPS-based samples. In contrast to the traffic count data, it is statistically precise at capture and does not have associated self-consistency problems.
- 3.10.3 Tuesday to Thursday weekday data (excluding school holidays) was extracted for the academic year. This was used to calibrate and verify model values of delay, speed and travel times.
- 3.10.4 The captured data is converted to the modelled road network algorithmically and involves some melding where ITN and model networks are not the same (typically because some junction geometry detail is omitted for modelling reasons). Modelled junction delays are included in the upstream link to which they apply. It can be less clear from the GPS data to which links junction delays are associated (given ambiguities in determining the extent of junctions, and their entry and exit delays). This results in a few caveats for individual link times, but overall journey times still match with Teletrac-Navman and, generally, the journey time data is regarded as precise and accurate, especially when taken over a contiguous set of links.
- 3.10.5 The journey time routes are between 9 and 28 km in length, and the observed journey times vary between approximately 14 and 39 minutes.
- 3.10.6 The validation of the network's flows and journey times mainly involved attention to the trip matrices, as described earlier in Section 3.8.
- 3.10.7 In just a few instances where specific issues arose, link times have been adjusted in light of observed data. These changes are included in the results presented in Section 3.10 above.
- 3.10.8 The main changes related to specific parts of the network where the modelling was not reflecting all the factors. The adjustments were applied to replicate:
- Delay through urban areas such as Camberley and bottlenecks such as Chobham;
 - Delay at approaches to major junctions;
 - Delay at pedestrian crossings, which are not explicitly modelled; and
 - Motorway queueing.

Figure 3-23 Locations of journey time routes



- 3.10.9 Evaluation of modelled and observed journey times provides a good indication of how well the model is replicating delay, especially as the observed data is extensive both in terms of area coverage and the sample size.
- 3.10.10 Table 3-7 and Table 3-8 compare the observed journey time routes with those extracted from the model. Section 8.3, in the Appendix, presents graphs which compare observed and modelled travel times across the length of each analysed routes.
- 3.10.11 With reference to the criteria set out in in Table 3-1 below.
- 3.10.12 Table 3-1, the model successfully validates in both time periods .
- 3.10.13 Table 3-1, the model successfully validates in both time periods. As can be seen in both tables, modelled journey times, whilst meeting the necessary criteria, are being slightly underestimated in most cases.
- 3.10.14 In summary the model is successfully validating in terms of journey times but is generally underestimating these compared to observed times. This indicates that the model is underestimating delay at junctions or modelled speeds are too high.

Table 3-7 Journey time comparisons for the AM Peak Hour (0800 – 0900)

Route	Length (km)	Observed Time (mins)	Modelled Time (mins)	Difference	% Difference	Met Criteria? ✓/✗
A30 Northbound	17.06	32.59	31.9	-0.7	-2%	✓
A30 Southbound	15.91	26.16	25.8	-0.3	-1%	✓
A322 Northbound	13.32	36.06	32.35	-3.7	-10%	✓
A322 Southbound	13.61	31.61	27.8	-3.8	-12%	✓
A325 Eastbound	19.79	38.60	34.4	-4.2	-11%	✓
A325 Westbound	19.43	34.39	30.3	-4.1	-12%	✓
A331 Northbound	12.54	15.25	14.5	-0.7	-5%	✓
A331 Southbound	13.35	15.72	15.7	0.0	0%	✓
B3015 Northbound	12.91	25.00	23.0	-2.0	-8%	✓
B3015 Southbound	17.57	19.01	17.6	-1.4	-8%	✓
B383 Northbound	9.13	15.57	14.7	-0.8	-5%	✓
B383 Southbound	9.13	14.07	13.3	-0.7	-5%	✓
M3 Eastbound	27.83	22.18	21.0	-1.2	-5%	✓
M3 Westbound	27.17	20.33	19.4	-0.9	-5%	✓
<i>Total number of routes met criteria</i>						14
<i>% of routes met criteria</i>						100%
<i>Within DfT acceptability guidelines?</i>						Yes

Table 3-8 Journey time comparison for the PM Peak Hour (1700 – 1800)

Route	Length (km)	Observed Time (mins)	Modelled Time (mins)	Difference	% Difference	Met Criteria? ✓/✗
A30 Northbound	17.06	28.4	26.9	-1.5	-5%	✓
A30 Southbound	15.91	34.7	33.6	-1.1	-3%	✓
A322 Northbound	13.32	27.91	26.8	-1.2	-4%	✓
A322 Southbound	13.61	27.39	25.5	-1.9	-7%	✓
A325 Eastbound	19.79	30.44	27.9	-2.5	-8%	✓
A325 Westbound	19.43	34.22	30.3	-4.0	-12%	✓
A331 Northbound	12.54	17.77	17.5	-0.2	-1%	✓
A331 Southbound	13.35	15.49	15.63	0.1	1%	✓
B3015 Northbound	12.91	21.45	18.9	-2.5	-12%	✓
B3015 Southbound	17.57	18.98	17.2	-1.8	-9%	✓
B383 Northbound	9.13	16.99	15.1	-1.9	-11%	✓
B383 Southbound	9.13	12.71	12.7	0.0	0%	✓
M3 Eastbound	27.83	18.91	18.6	-0.3	-2%	✓
M3 Westbound	27.17	26.88	25.9	-1.0	-4%	✓
<i>Total number of routes met criteria</i>						14
<i>% of routes met criteria</i>						100%
<i>Within DfT acceptability guidelines?</i>						Yes

3.11 Route Choice Calibration

3.11.1 As in real life, traffic within the model typically has a choice of routes available, and the model will assign traffic on the routes with the lowest generalised costs. In accordance with TAG Unit M3.1, checks have been undertaken examining the modelled routes between selected origins and destinations.

3.11.2 Appendix 8.3 presents plots from the model (for all route classes) compared against routes suggested by google maps (using data from 2019 to avoid the effects of the covid-19 pandemic). These, together with local knowledge and judgement were used to verify the route choice within the model. This cannot be regarded as true validation as observations of routes are not available but provides an additional layer of checking the behaviour within the model. In most cases the routes very closely match those suggested by google.

3.12 Validation Summary

3.12.1 Although the post matrix estimation matrices do not meet the TAG criteria in terms of level of change from the prior matrices, the differences are not considered to be significant and the model validates well across geography, road types and time periods.

3.12.2 The assessment with respect to observed flows is less assured due to the variability of the large count dataset, as well as limitations in the standard count comparison metrics. A broad view across the study area, though, does not indicate any systematic problems. For reference, the flow validation summary table is repeated below:

Table 3-9 Flow validation summary table

	Total Counts	Met GEH		Met Flow		>10	Av. GEH
AM Peak Hour (0800-0900)	625	509	81%	524	84%	28	3.38
IP Average (1000-1600)	612	526	86%	547	89%	16	2.77
PM Peak Hour (1700-1800)	558	433	78%	450	81%	30	3.55

3.12.3 The journey time comparisons provide more assurance because of the statistical strength of the observed data, and to which the model's results match well in both time periods

3.12.4 Details are also open for further inspection via spreadsheets providing additional technical documentation, on request.

3.13 Assessment of Suitability

3.13.1 This sub-area model has been validated in preparation for the assessment of Surrey Heath's Local Plan spatial strategy. The validation criteria set out in previous sections are a guide and the larger and more complex the model the more difficult it is to meet all the criteria. Tag Unit M3.1 states in paragraph 3.2.2 that "the achievement of the validation guidelines... does not guarantee that a model is 'fit for purpose' and likewise a failure to meet the specified validation standards does not mean that a model is not 'fit for purpose". It is therefore up to the modeller to determine whether a model is suitable for its intended purpose. The development of this model sought to strike a balance between flow validation, journey time validation and minimising matrix changes in order to produce a suitable tool for evaluating the impact of the Surrey Heath local Plan.

3.13.2 The Local Plan Assessment will adjust the matrices to reflect the trips generated by committed and proposed development in Surrey Heath. Trip distribution for new zones will be taken from existing adjacent zones. Outputs of the assessment will include changes in traffic volumes and speeds, journey times, junction delay, and level of service associated with the additional development related demand. The model has good flow validation and journey times rendering it suitable for assessing these changes. Taking the overall model performance into account, despite the flow validation not meeting the 85% threshold in the AM peak hour and PM peak hour time periods, it is considered that the model is suitable for the purposes of the Surrey Heath Local Plan assessment.

3.14 Limitations and Caveats of this strategic model

3.14.1 When choosing a model to use, it is important to recognise that all models have limitations, including strategic models such as SINTRAM and its associated Local Models. Strategic models cannot represent accurately every individual journey made by every mode and route. They are also not precise in the way they replicate specific individual behaviour and the interaction between individuals. There are many factors that impact people's travel behaviour and the day-to-day variation in congestion which are random and impossible to predict.

3.14.2 The model is strategic in nature and has good validation at this level, but local junction validation may be required if the model outputs are to be used in detailed junction assessments.

3.14.3 The strategic nature of this model and its findings do not in any way reduce the need for individual developments to have detailed, local transport assessments carried out which may identify additional specific impacts on the network (e.g. junction congestion) that require mitigation.

3.14.4 Understanding the limitations of a model is key to making the best use of it and taking advantage of its strengths. The reasonable expectation from this model is that it is able to estimate the likely route choice of transport users, and the resulting average levels of congestion.

3.14.5 Outputs are provided in good faith and the user accepts full responsibility to satisfy themselves of the accuracy, reliability and completeness of the information.

3.14.6 The results from this model are only one element of a much wider evidence base needed to be considered in the development of further policy documents.

3.14.7 It is advised that whenever a model is used for a new project, it should be reviewed and refined to ensure that it is fit for purpose for the purposes of that project.

4 **MODEL FORECASTING**

4.1 Forecast Scenarios

4.1.1 For this Regulation 19 assessment, the followings scenarios have been modelled:

- Do Minimum – this includes growth outside the borough, plus growth from planned and committed developments since 2014 within the borough.
- Do Something – as above **plus** Local Plan development sites and windfalls.

- 4.1.2 The Do Something scenario has been compared against the Do Minimum, to determine the highway impact of the Local Plan site allocations.
- 4.1.3 For all scenarios, natural demographic and employment changes, as determined by the Department for Transport's (DfT) National Trip End Model (NTEM) have been included for the whole of Great Britain. In line with the DfT's Transport Appraisal Guidance, adjustments have been made to the NTEM data to reflect the locality and composition of the committed development sites which comprise the scenarios.
- 4.2 Forecast Year
- 4.2.1 The model forecast year is 2038.
- 4.3 Development Sites and Pro-Forma
- 4.3.1 Information regarding the existing and proposed commercial and residential composition of allocation sites to be considered in this appraisal was provided by Surrey Heath Borough Council in the form of the County Council's pro-forma.
- 4.3.2 Each development site listed in the pro-forma was matched to the model zone system using provided grid references and Geographic Information System (GIS).
- 4.3.3 Figure 4-1 geographically presents the change in commercial land use at the development sites from the pro-forma for the Do Something scenario, and Figure 4-2 shows the residential sites. Note that sites which have already received planning permission are not included within these figures.
- 4.3.4 The gross and net total of non-committed households is summarised in Table 4-1. The net is the difference between the number of households which exist at the sites which are to be replaced by the proposed. The totals also include a windfall allowance of 457 dwellings.

Table 4-1 Gross and net non-committed households by scenario

Non-Committed Households	2038 Do Something
Gross	2,708
Net	2,665

Figure 4-1 Change in commercial land use at the Local Plan development sites in Surrey Heath

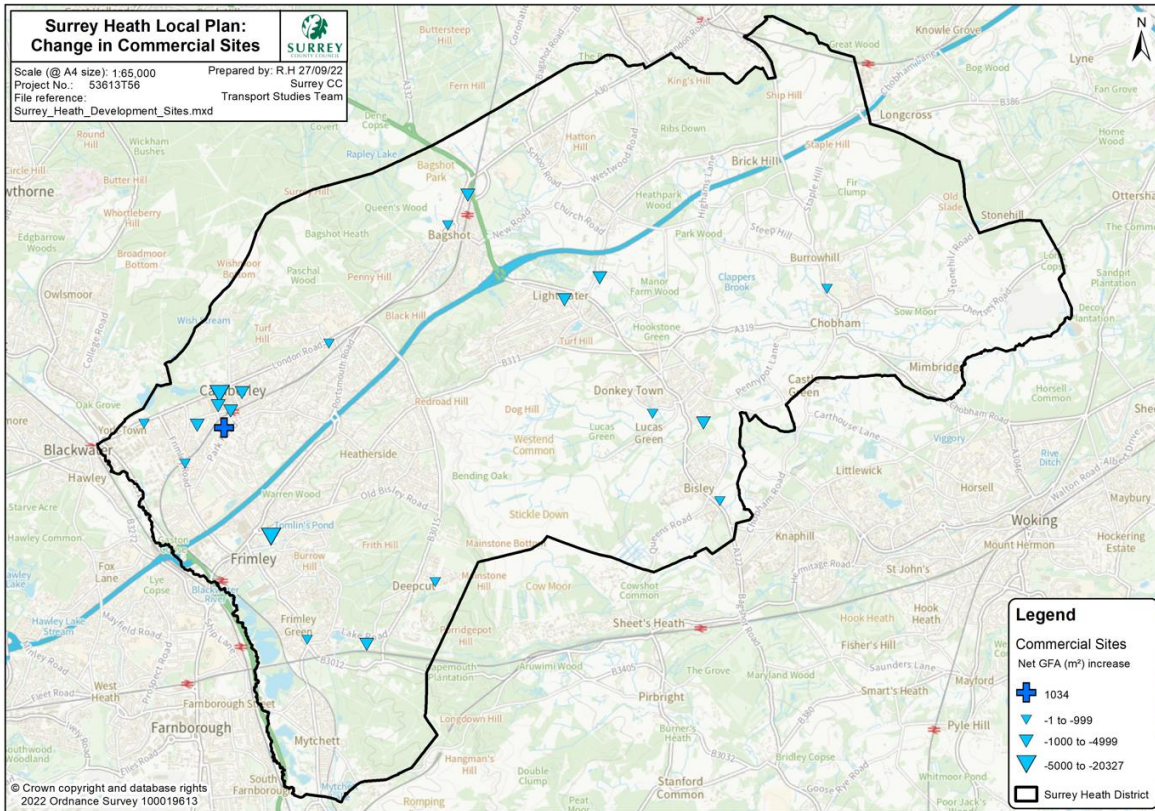
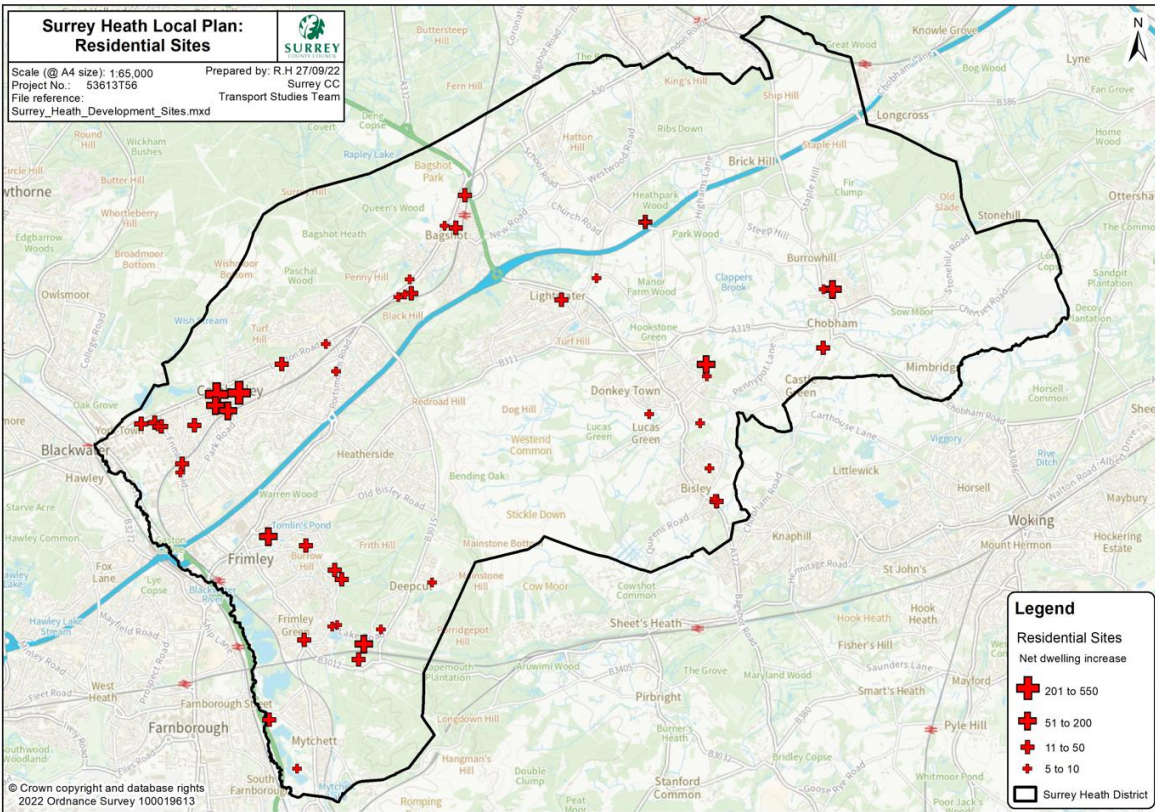


Figure 4-2 Local plan residential development sites in Surrey Heath



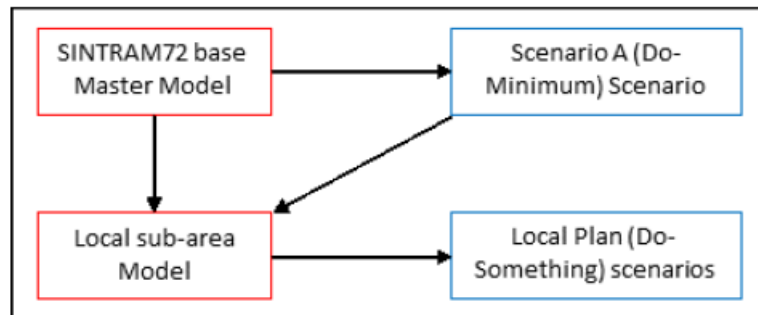
5 FORECASTING APPROACH

5.1.1 For Local Plan related assessments, the forecasting approach incorporates the following network (supply) and growth (demand) alterations:

- committed changes to the highway and public transport networks;
- background growth both outside and within the sub-area model;
- growth arising from committed developments within the local planning authority area;
- growth arising from proposed local plan related developments, including windfall developments; and
- mitigation to address the proposed growth, which can result in adjustments to both the demand (e.g. fewer highway and public transport trips due to more commuters working from home or travelling using active modes) and network (e.g. junction alterations).

5.1.2 The overall approach to the forecasting process is shown in Figure 5-1. This illustrates the relationship between the master model, sub-area model and the future year scenarios.

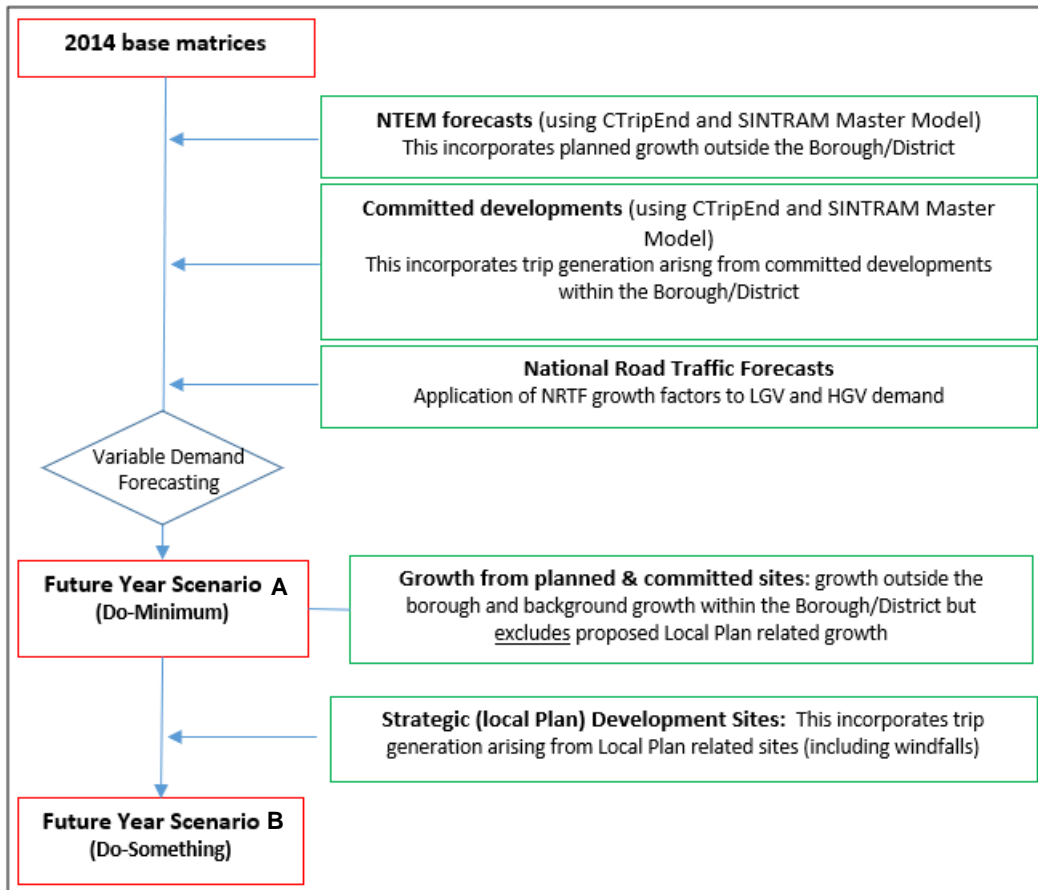
Figure 5-1: Overall approach to forecasting.



5.2 Future Year Scenario A, the Do-Minimum

5.2.1 The approach to establishing the future year Do-Minimum (Scenario A) is shown in Figure 5-2.

Figure 5-2: Forecast matrix development process.



5.2.2 For the Scenario A matrices, growth outside the borough and background growth within the borough is determined using the demographic and employment changes contained within the Department for Transport's (DfT) National Trip End Model (NTEM). Trips associated with built and committed developments within the borough since 2014 are calculated from planning data provided by Surrey Heath Borough Council with corresponding population and employment data inserted into CTripEnd via the associated 'ixi' tables. This process is described in greater detail in the following Section 6, including how the forecast demand is applied to the Sub-Area Model.

5.3 Future Year Scenario B, the Do-Something

5.3.1 The production of Scenarios B matrices builds upon the Scenario A matrices. Unlike Scenario A, the forecasting is undertaken within the Sub-Area model. This process is described in Section 7.

6 FUTURE YEAR DO-MINIMUM

6.1 Background Growth and Committed Developments

6.1.1 In order to establish the future year Do-Minimum scenario, against which the Do-Something scenarios will be compared, background growth both inside and outside the study area needs to be established.

6.1.2 There are three factors influencing the demand for car travel during the peak hours being modelled which are:

- 1) general demographic and economic trends, as per DfT's National Trip End Model (NTEM) forecasts;
- 2) Notable developments in housing and employment in neighbouring boroughs; and
- 3) Constructed or committed development since the base year.

6.1.3 Growth outside the study area is forecast through the use of CTripEnd. This is part of the National Trip End Model (NTEM) and sits behind TEMPro. CTripEnd provides the same information as TEMPro, but in greater detail.

6.1.4 Consequently, growth outside the study area is derived from and reflects TEMPro, but the exception to this is where there are large development sites close to the district or borough boundary, where the resulting trip generation might have a significant impact on the network within the study area. In such circumstances, the quantum of households and employment changes are informed from available Transport Assessments or sourced directly from the relevant district or borough, to model the impact of these sites more accurately. The following large development sites outside the borough are included within the do-minimum scenario in the model:

- Hartland Park, Bramshot Lane,
- Land at former TRL Site, Old Wokingham Road,
- Longcross Garden Village South,
- Longcross North, Former DERA Site, Chobham Lane,
- Wellesley (Aldershot Urban Extension),

6.1.5 Within the study area (Surrey Heath Borough) increased trips arise from background growth (for example, increases in car ownership, etc.) and development that has either been built since the base year (2014) or is committed. The former is obtained from data contained within CTripEnd whereas the latter is informed by planning data provided by the Planning Authority and fed into CTripEnd.

6.1.6 This planning data has been provided in the form of the County Council's pro-forma. Each development site listed in the pro-forma has been matched to the model zone system using provided grid references and Geographic Information System (GIS). Where the network access of large development sites does not relate well to existing centroid connectors, they have been given their own new zone.

6.2 Vehicle Trip Generation

6.2.1 As described above, Local Model trip ends (zonal trip productions and attractions) are initially derived from SINTRAM72 modelling, which uses local population and employment data at a detailed level for the Do-Minimum.

6.2.2 An extract of the Planning Spreadsheet which contains the proposed local land use data used in the Do Minimum forecasting, and which is derived from the Pro-Forma information supplied by Surrey Heath Borough Council, is shown in Figure 6-1. The differences relate to the base year (2014) values.

Figure 6-1: Extract of scenario land use data for Do-Minimum

SINTRAM Zone	Zone Name	Population	Dwellings	Jobs-D1 Primary	Jobs-D1 Higher Educational	Jobs-D1 Adult Educational	Jobs-D1 Hotel est.	Jobs-A1 Retail Trade	Jobs-D1 Health Medical	Jobs-B3 BB Services	Jobs-B2 Industry	Jobs-A3 S Restaurants	Jobs-D2 Recreation	Jobs-D2 Fishing	Jobs-B1 Business	HM-C2 Hobbies Second	Jobs-Other	Population	Dwellings	Jobs-D1 Primary	Jobs-D1 Higher Educational	Jobs-D1 Adult Educational	Jobs-C1 Hotel est.	Jobs-A1 Retail Trade	Jobs-D1 Health Medical	Jobs-B3 BB Services	
754	Watches Road Car Park	2127	153	0	0	0	0	35	97	0	0	6	12	0	0	0	0	2082	151.0	0.0	0.0	0.0	0.0	20.0	97.0	0.0	
755	The Atrium Car Park	796	57	0	0	0	0	20	214	8	0	5	5	0	20	0	0	771	56.0	0.0	0.0	0.0	0.0	-13.0	214.0	8.0	
756	Heathcote Road Camberley	175.5	111	0	0	0	0	0	25	0	0	0	0	0	0	0	0	359.1	109.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
757	Portersby Road Camberley	101.35	83	0	0	0	0	0	60	0	0	0	0	0	0	0	0	95.4	81.0	0.0	0.0	0.0	-2.0	0.0	60.0	0.0	
758	Southwell Park Road Camberley	112	8	0	0	0	0	0	0	0	0	5	0	0	0	0	0	112	8.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.0	
759	Arena Leisure Centre Car Park	218.95	125	0	0	0	0	0	39	0	0	60	0	0	0	0	0	214.5	123.0	0.0	0.0	0.0	-1.0	-19.0	39.0	-6.0	
760	Frimley Grove Gardens Frimley	12.5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
761	Connaught Junior School	203.7	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197.5	109.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
762	Bagshot Station Car Park	182	127	15	0	0	0	4	12	0	0	0	2	0	9	0	0	169.5	122.0	1.0	0.0	0.0	0.0	-7.0	12.0	0.0	
763	High Street Bagshot Car Park	65.95	36	0	0	0	0	3	5	2	0	7	3	0	4	0	0	61.0	36.0	0.0	0.0	0.0	0.0	1.0	5.0	2.0	
764	Bagshot Infant School	147.9	72	0	0	0	0	21	4	4	0	9	0	0	6	0	0	135.7	67.0	0.0	0.0	0.0	0.0	-9.0	1.0	4.0	
765	Guilford Road Bisleigh Car Park	412.2	200	9	0	0	0	0	65	0	8	0	2	0	0	0	0	405.4	197.0	9.0	0.0	0.0	0.0	0.0	0.0	65.0	0.0
766	Chobham Place Woods Car Park	158.9	104	1	0	0	0	0	74	0	396	0	8.5	8	430	0	0	124.5	97.0	1.0	0.0	-4.5	0.0	-11.0	74.0	0.0	
767	High Street Chobham Car Park	226.15	107	0	0	0	0	10	2	2	0	6	4	5	1810	0	0	199.8	99.0	0.0	0.0	0.0	0.0	-11.0	-6.0	0.0	
768	Lakeside Primary School	13.9	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	13.9	6.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	
769	Balmoral Drive Car Park	432.95	174	0	0	0	0	0	25	0	0	0	0	0	4	0	0	430.5	173.0	0.0	0.0	0.0	0.0	0.0	2.0	-50.0	
770	Frimley CofE Junior School	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	-4.0	0.0	0.0	
771	Cross Farm Infant School	2.5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.5	1.0	0.0	0.0	0.0	0.0	0.0	-3.0	0.0	
772	Chyesmore Drive Frimley	275	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260.0	105.0	0.0	0.0	0.0	0.0	0.0	-125.0	0.0	
773	Marindale Avenue Car Park	13	6	3	0	0	0	0	0	1	0	5	0	0	0	0	0	9.1	4.0	3.0	0.0	0.0	0.0	0.0	0.0	1.0	
774	Buttermere Drive Camberley	2.5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
775	Hammond School	7.5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.7	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
776	Guilford Road Lightwater	60.9	43	0	0	0	0	0	12	0	0	0	0	0	1	0	0	60.9	43.0	0.0	0.0	0.0	0.0	0.0	-3.0	2.0	
777	Lightwater Village School	27.55	13	0	0	0	0	3	0	0	0	0	0	0	0	0	0	21.1	10.0	0.0	0.0	0.0	0.0	0.0	-3.0	-6.0	
778	Mytchett Primary School	26	11	0	0	0	0	8	0	4	0	0	0	0	0	0	0	26.0	11.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	
779	Ilford business park	635	314	0	0	0	0	3	74	7	2	0	4	0	127	0	0	587.5	271.0	0.0	0.0	0.0	0.0	-1.0	24.0	4.0	
780	Woodend Road Car Park	218.8	141	0	0	0	53	2	8	239	248	0	1	0	289	0	0	196.9	132.0	0.0	0.0	0.0	53.0	-6.0	8.0	239.0	
781	Collingwood College	22.9	9	0	0	0	16	0	0	0	4	0	0	0	0	0	0	22.9	9.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	
782	Lorraine School	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
783	Prior Road Car Park	44.7	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37.2	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
784	The Grove Primary School	76.4	36	4	0	0	0	0	0	0	0	0	0	0	0	0	0	65.1	32.0	4.0	0.0	0.0	0.0	-5.0	0.0	0.0	
785	Hillsborough Park Camberley	6.85	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
786	York Town Car Park	615.25	337	0	0	0	0	197	0	60	121	42	0	0	9	0	0	553.4	306.0	0.0	0.0	0.0	0.0	181.0	0.0	56.0	
787	Frimley Road Camberley	18.7	9	2	0	0	0	0	6	0	3	0	28	0	0	0	0	13.7	7.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	
788	Berrian Way Camberley	32.4	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27.4	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
790	Crawley Ridge Infant School	14.65	7	0	0	0	0	56	0	0	0	0	0	0	0	0	0	9.7	5.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	
791	Castle Road Camberley	20.8	14	0	0	0	0	0	10	0	0	0	0	0	0	0	0	16.9	12.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	
792	Kings Ride Camberley	147.55	62	0	0	0	0	14	0	0	0	0	0	0	0	0	0	144.9	61.0	0.0	0.0	0.0	0.0	14.0	-79.0	0.0	
793	Verran Road Camberley	108.2	102	6	0	0	0	0	39	0	0	0	0	0	0	0	0	99.4	38.0	6.0	0.0	0.0	0.0	0.0	0.0	39.0	
794	Kings International College	15.2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

- 6.2.3 Trip productions are calculated from daily trip rates for different trip purposes from the DfT’s National Trip End Model (NTEM) CTripEnd v7.2 system. Trip attractions for different purposes are allocated to zones on the basis of different types of employment levels per zone. A sample of these are shown in Figure 6-1
- 6.2.4 Further details are provided in the SINTRAM72 documentation *Technical Note TN1 Processing Trip Ends*, which also describes the allocation of trips into ‘car available’ and ‘non-car available’ categories.
- 6.2.5 CTripEnd is based on a coarser zoning system than the 1615 zones used in SINTRAM72. However, it allows the introduction of finer zones, as is done for SINTRAM72 in general but also for local area models.
- 6.2.6 Because the forecasts for population and employment are provided from the two sources of the DfT’s CTripEnd software, which represents general forecasts, and from data supplied by Surrey Heath Borough Council on built and committed development, provision is included in the calculations to avoid issues of ‘double-counting’ arising from the use of the two data sources, subject to some constraints.
- 6.2.7 The basic notion is that committed growth implied by ‘local’ data is more considered than that given by the DfT estimates; that is, there is a clearer view as to its spatial distribution across the Borough in specific zones. Accordingly, the implied local growth in the modelling period is first ‘scaled down’ across the borough, then the local forecast growth is applied to the specific zones as provided by Surrey Heath. In this way, the overall growth level for the borough respects the DfT future year forecasts.

6.3 Vehicle Trip Distribution

- 6.3.1 The trip ends will be used in the SINTRAM72 modelling to construct ‘latent’ (or ‘unconstrained’) demand PA trip matrices and their zonal trip ends. This corresponds to the demand for travel implied by economic and land use data applying to the forecast scenario, but not considering congestion on the transport networks, which can inhibit demand. Calculating the effects of congestion on demand relative to the latent demand represents the ‘variable demand’ element. This involves a number of ‘demand-supply’ iterations in the modelling process.
- 6.3.2 The PA (production-attraction) matrices in the demand modelling reflect all-day home-based (HB) ‘tours’, that is, implying outbound from the home and inbound returning to the home, plus non-home based (NHB) trips. These PA matrices are

converted to OD (origin-destination) trip matrices for three time-periods representing the AM peak, inter-peak, and PM peak. These are used for highway assignment (congestion) modelling in SINTRAM72, but also provide the forecast 'prior' car matrices for the Local Model.

- 6.3.3 Once the latent demand matrices have been established, as outlined above, SINTRAM72 takes account of congestion through 'variable demand modelling' (VDM). This follows the form of modelling recommended in TAG (Unit M2 Variable Demand Modelling), and details of the SINTRAM72 implementation are provided in the SINTRAM72 Technical Note *TN5 Model Technical Report*.
- 6.3.4 A central component of the methodology is provided by '(hierarchical incremental) choice modelling', which models traveller choices for travel.
- 6.3.5 The choice modelling is driven by the costs of different options. In the modelling, these are expressed as generalised time (minutes) where financial costs (e.g. fares, fuel, and parking costs) are converted to time units using values of time applicable to the relevant segments of demand, such as different trip purposes, as provided in the TAG Data Book.
- 6.3.6 The sensitivity of choices to cost differences is modelled using initial values taken from TAG Data Book parameters. These have been adjusted as part of the SINTRAM72 forecasting validation process, in particular, through the TAG 'Realism' sensitivity tests.
- 6.3.7 The choice modelling is confined to destination and mode choices. Mode choice includes Park & Ride as a choice for car users. Home-based work (commuting) and education trips are 'doubly-constrained' to match employment and education zonal trip attractions.
- 6.3.8 The sensitivity of travel choices to changes in costs is limited to trips with one or both ends in the SINTRAM72 Inner Study Area. mode, time period, and destination characteristics of other ('external-to-external') trips are based on growth factoring ('Furnessing') base year/reference trips to trip ends derived from CTripEnd.
- 6.3.9 Once the trip matrices have been forecast via VDM modelling, they are converted to car matrices for the Local Model. These are then subject to further processing within the Local Model to reflect the changes between the prior and estimated matrices arising in the base year validation modelling.
- 6.3.10 The means of achieving this is by calculating a set of production and attraction adjustment factors for each zone that reflect the changes between the base matrices and the equivalent estimated matrices. These adjustment factors are then applied to the future year matrices using a Furness factoring process.

6.4 Goods Vehicles

- 6.4.1 Goods vehicle trip matrices are forecast using growth factors by for LGVs and HGVs derived from DfT Road Traffic Forecasts 2018⁷. HGV and LGV growth for the South East region was extracted and interpolated to derive growth factors for the interim and horizon years. Note that growth for the period 2014 to 2015 has been assumed to be consistent with annual growth in the 2015 to 2020 period. The resulting growth factors are shown below in Table 6-1.

⁷ Table 1, Road Traffic Forecasts 2018 (publishing.service.gov.uk)

Table 6-1 LGV and HGV growth factors

	LGV	HGV
2014 to 2038	1.392	1.116

6.5 Changes in Forecast Demand

6.5.1 The modelling process, as described above, converts the land use forecasts into travel demand forecast. There are four main steps in this process:

- 1) Calculate latent demand in SINTRAM72 – just taking account of land use changes;
- 2) Take account of highway congestion on demand for car travel in SINTRAM72 – VDM modelling;
- 3) Convert forecast vehicle OD matrices to Local Sub-area Model OD vehicle matrices; and
- 4) Apply base-year Local Sub-area Model re-validation adjustments to Local Model OD forecasts.

6.5.2 The changes mean that there is more than one set of forecasts. Clearly, it is the results of the last step that are most pertinent, but it can be informative to understand the results of the earlier steps when seeking to interpret the results. On this account, the Appendix (see Section 8.4) includes results from SINTRAM72 modelling.

6.5.3 NOTE: Care is required with regard to the units applying in the tables relating to demand, especially when comparing between tables. The tables are labelled, but values can vary according to PA (outbound elements of tours) or OD trips, average hourly and peak hours, summed over 24-hours or over AM, IP, and PM average hourly flows.

6.5.4 Table 6-2 shows average growth rates by trip purpose from 2014 to 2038. It may be noted that work and education trips, which predominate in the peak hours, especially the AM peak, have lower growth rates than other purposes.

Table 6-2 Average growth rates 2014 to 2038

Trip Purposes	Mean Production Growth	Mean Attraction Growth
Home based education	1.07	1.12
Home based employers' business	1.09	1.15
Home based other	1.18	1.24
Home based shop	1.18	1.22
Home based visiting	1.12	1.11
Home based work	1.03	1.07
NHBEB	1.13	1.13
NHBO	1.17	1.17

6.5.5 Further details of Latent Demand changes are provided in Table 8-1 and Table 8-2 in the Appendix.

6.5.6 The matrix totals applying in the Local Sub-area Model forecasts are modified from Latent Demand values on account of highway congestion and Local Sub-area Model validation changes.

6.6 Forecast Network

6.6.1 All forecast networks are a copy of the base coupled with the changes described below.

6.6.2 In all forecast scenarios, completed or committed highway schemes of strategic importance since 2014 have been included, as listed in Table 6-3 below. These are inserted into the model prior to forecasting so that demand is responsive to these changes in supply.

Table 6-3: Completed or committed highway schemes included in the forecast network

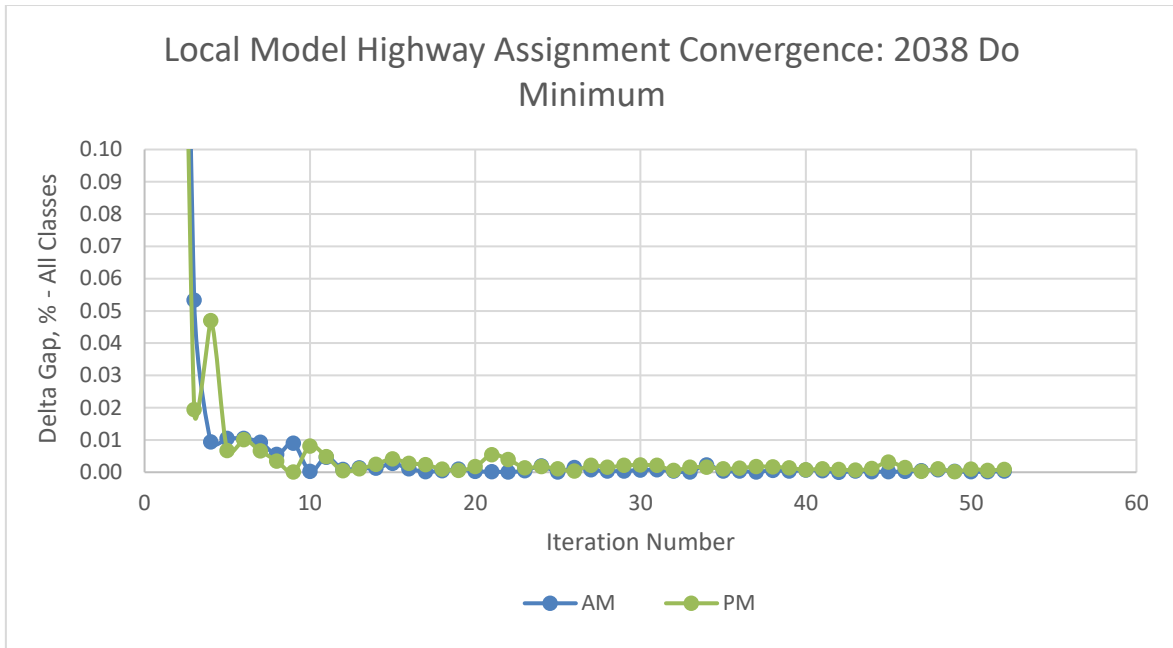
F1	Malden Rushett signal junction of A243 Leatherhead Road with B280 Fair Oak Lane
F2	M3 Hard Shoulder running J2 to 4a
F3	A325 Portsmouth Road two lanes between Toshiba and Frimley Hospital roundabouts
F4	Waitrose access to A246 York Road, Guildford
F6	Redhill balanced network
F7	Runnymede roundabout scheme
F8	Epsom Plan E
F9	Horley Masterplan
F10	Farnham rail station car park enlargement
F11	Meadow's scheme, Camberley
F12	M23 J8 to 10 smart motorway
F16	Victoria Square, Woking
F17	Princess Royal Barracks, Deepcut
F18	Millbrook car park, Guildford
F19	M25 J10 to A3 Interchange, including improvements to Ockham and Painshill junctions
F20	Ash rail station level crossing replacement with bridge alternative
F21	Staines STP
F22	A240 Reigate Road Nescot College entrance, Epsom
F23	A327 Minley Link, Fleet
F24	Bordon Relief Road
F25	M25 J8
F26	A23 Brighton Road, Hooley
F27	A30 Crooked Billet roundabout
F28	M25 J13
F29	Woking HIF
F30	Woking Red Shoppers Car Park
F31	Longcross North
F32	Farnham and Sutton Station PnR
F33	A320 HIF
F35	Slyfield Area Regeneration Project - Guildford HIF - Weyside Urban Village Development
F36	A31/A311 Signals on Tongham roundabout
F37	A30 and Camberley town centre improvement works
F46	A24 speed limit changes
F47	Forge Wood, Balcombe Road and Antlands Lane junction improvement
F48	Forge Wood, Gatwick Road and Radford Road junction improvement
F49	Garlick's Arch mitigation
F50	A325 reclassification, Farnham

6.7 Assignment

- 6.7.1 Assignment for the forecast network is as described in Section 2.11 for the base year, although for forecast scenarios it was ensured that the delta gap was less than 0.1% for at least 4 consecutive iterations.
- 6.7.2 Figure 6-2 shows convergence for the Do Minimum forecast. The first two iterations are omitted to provide clarity for variations in the later iterations.
- 6.7.3 Convergence is generally smoother for the base year than the forecast, with PM convergences patterns being much quicker than the AM.
- 6.7.4 Convergence is achieved rapidly, and with only minor evidence of instability evident in the AM case. These results will be influenced by the dominant motorway flows

which, in this small network, achieve stable values quickly. Instabilities on minor roads will have less impact on the gap metric.

Figure 6-2 AM forecast highway assignment convergence -epsilon values for 2038 Do-Minimum



7 FUTURE YEAR DO-SOMETHING

7.1.1 The approach described below will be used for the Do-Something scenario options building on the Future Year Do-Minimum, Scenario A, which was explained in Section 6 above.

7.1.2 However, for the Do-Something scenario the approach is applied to the Local Sub-area Model rather than to the Master Model, as indicated in Figure 5-1.

7.2 Development Sites and Pro-Forma

7.2.1 As for the future year Do-Minimum scenario, information regarding the composition of both commercial and residential development sites to be considered in the appraisal has been provided by Surrey Heath Borough Council in the form of Surrey County Council's pro-forma. Each development site listed in the pro-forma is matched to the SINTRAM72 model zone system using the grid references provided and Geographic Information System (GIS).

7.3 Vehicle Trip Generation

7.3.1 However, for the proposed (non-consented) sites, instead of using trip productions informed by the DfT's National Trip End Model, vehicle trips generated by each development site are calculated using the information contained within the pro-forma combined with survey data extracted from the Trip Rate Information Computer Database (TRICS).

7.3.2 TRICS is the national standard database system of trip generation and analysis used in the planning application process. The database holds thousands of trip rate surveys generated by different land uses and location type across the UK and Ireland.

- 7.3.3 For developments within Surrey Heath borough, the database has been interrogated for sites of a similar geographical location and land use in line with guidance from the 2016 Good Practice Guide. The database produces trip rates per 100m² gross floor area (GFA), site area (Ha), number of residents or by residential unit. The resulting trip rates will be applied to the size and composition of each development to calculate the trip generation for each site. Consideration has been made to the previous or existing land use of the development site and the trips it would have created. These trips have been deducted from those generated by the new development to prevent double counting providing that the site was active in 2014.
- 7.3.4 The trip generation has been calculated separately for vehicles arriving and departing each development site. This will also be split into the vehicle types: car, LGV and HGV, similarly informed by the information contained within the TRICS database. The trips rates that will be used for residential developments are shown in Table 7-1.
- 7.3.5 At this concept stage, all development related trips have been assumed to be new trips, and as such can be considered to represent a worst-case scenario. No allowance has been made for linked, pass-by, diverted or transferred trips. The base assumption is that people will maintain past and current travel behaviour. Demand is therefore projected into the future based on past observations. Trip rates have been applied directly and no adjustments have been made. This represents a traditional 'predict and provide' approach rather than a vision based, supply led scenario based on the emerging 'decide and provide' principles.
- 7.3.6 Negative values can arise due to a greater number of vehicle trips being generated from the previous development(s) than the new site(s) being proposed. Where negative trips were present, these have been removed from the surrounding zone when applied in the model.

7.4 Trip Rates

- 7.4.1 Once the unallocated planning data has been provided, trip rates for each site, both residential and commercial, can be identified. Surrey County Council has already extracted trip rate data from the TRICS database 7.7.4 (2021), and this dataset is available for inspection.

Table 7-1: Residential vehicular trip rates

Location	Main Land Use	Sub Land Use	Units	Number of Surveys	Arrivals		Departures	
					0800-0900	1700-1800	0800-0900	1700-1800
Town Centre	C3	Houses	No. of dwellings	-	Not used			
Town Centre	C3	Flats	No. of dwellings	3	0.031	0.063	0.080	0.049
Edge of Town Centre	C3	Houses	No. of dwellings	9	0.149	0.243	0.300	0.187
Edge of Town Centre	C3	Flats	No. of dwellings	17	0.052	0.173	0.174	0.096
Suburban Area	C3	Houses	No. of dwellings	29	0.117	0.354	0.379	0.188
Suburban Area	C3	Flats	No. of dwellings	12	0.054	0.140	0.173	0.077
Edge of Town	C3	Houses	No. of dwellings	42	0.137	0.336	0.368	0.157
Edge of Town	C3	Flats	No. of dwellings	3	0.101	0.246	0.217	0.130
Neighbourhood Centre	C3	Houses	No. of dwellings	13	0.109	0.314	0.332	0.126
Neighbourhood Centre	C3	Flats	No. of dwellings	2	0.050	0.146	0.137	0.073
Free Standing	C3	Houses	No. of dwellings	1	0.153	0.403	0.361	0.181
Free Standing	C3	Flats	No. of dwellings	-	No sites in TRICS			

- 7.4.2 The trips rates that will be used for the potential residential developments are shown in Table 7-1 above. Trip rates for commercial land uses have not been listed given the diverse range of land uses they apply to but are available on request. Their land uses are then matched to an appropriate main and sub land use using descriptions provided by Surrey Heath Borough Council in the pro-forma. Each proposed

development has been assigned to one of the geographical locations shown in Table 7-1 above using the TRICS guidance on location definitions.⁸

7.5 External and Background Traffic Growth

7.5.1 External and background growth is dealt with using CTripEnd during the Do-Minimum scenario. Since the Do-Something scenarios are then built on top of this, there is no need to cater further for background growth.

7.6 Vehicle Trip Distribution

7.6.1 As the master model trip matrices are produced using data from multiple sources, including TomTom GPS data, Census data, national travel survey and gravity modelling, it is considered that the model reflects trip distribution comprehensively. Consequently, forecast trips associated with proposed developments will be derived from the distribution for that zone or, in the case of greenfield sites, appropriate adjacent zones.

7.6.2 This is considered to be a better approach compared with deriving the distribution solely from the Office of National Statistics (ONS) Census 2011 journey to work dataset.

7.7 Forecast Network

7.7.1 This is the same as the Do-Minimum forecast network, as mentioned in Section 6.6 above.

7.7.2 All forecast networks are a copy of the base coupled with the completed or committed highway schemes of strategic importance described in Section 6.6.

7.8 Assignment

7.8.1 It is assumed that there will be no issue with access to and egress from the development sites.

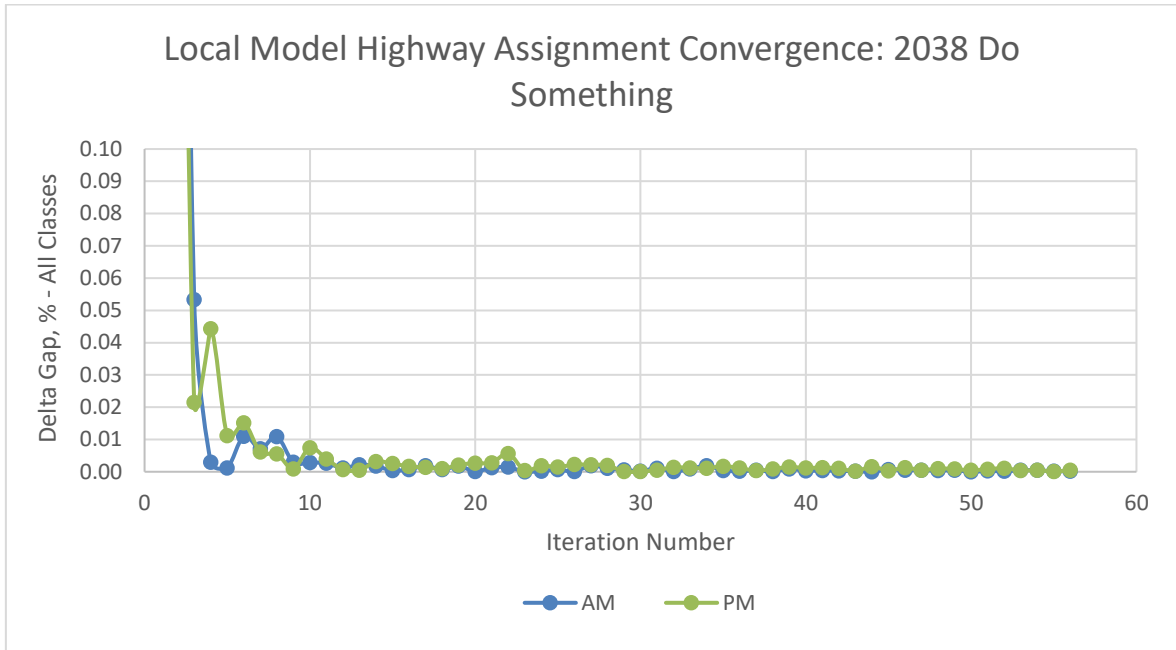
7.8.2 The trips within the forecast matrices will be fixed when assigned to the network. In comparison to a variable demand approach, where demand for each origin and destination pair can vary according to demand elsewhere to reflect behavioural change, this represents a worst-case situation and makes the impact of the development sites more transparent to aid the decision making process.

7.8.3 The Do-Something matrices were assigned to the network using a fixed trip equilibrium assignment as detailed in paragraph 6.7.1 for the Do-Minimum.

7.8.4 Convergence is provided in Figure 7-1 for the Do Something forecast. The first two iterations are omitted to provide clarity for variations in the later iterations.

⁸ S:\Core\Transport Studies\MUG\SoftwareHelp\TRICS Locations Definitions.pdf

Figure 7-1 AM forecast highway assignment convergence - epsilon values for 2038 Do-Something



8 APPENDIX

8.1 AM Peak Hour (0800 – 0900) Link Flow Validation Count Comparison

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
2	3216: MCTC A30 London Road E-W	632	561	-71	-11%	2.93
3	4317: ATC B389 Christchurch Road E-W	480	544	64	13%	2.81
4	4318: ATC B389 Christchurch Road W-E	535	547	12	2%	0.51
21	2707: MCTC B383 Windsor Road S-N	420	486	66	16%	3.10
22	2706: MCTC B383 Windsor Road N-S	457	433	-24	-5%	1.13
27	3819: MCTC A322 Bagshot Road S-N	572	403	-169	-30%	7.66
28	3820: MCTC A322 Bagshot Road N-S	536	303	-233	-43%	11.38
29	508: Partial C12 High Street W-E	469	402	-67	-14%	3.23
32	3045: MCTC D7309 St Johns Road N-S	185	182	-3	-2%	0.23
33	3046: MCTC D7309 St Johns Road S-N	196	203	7	4%	0.51
49	3183: MCTC A30 London Road E-W	914	985	71	8%	2.29
50	4200: ATC D3576 Laundry Lane S-N	173	165	-8	-5%	0.61
52	4816: ATC A328 Guildford Road S-N	742	839	97	13%	3.45
53	4817: ATC A329 Guildford Road N-S	732	601	-131	-18%	5.06
56	4556: MCTC A323 Guildford Road S-N	373	464	91	24%	4.47
57	4555: MCTC A323 Guildford Road N-S	343	281	-62	-18%	3.49
58	4846: MCTC A323 Guildford Road N-S	343	281	-62	-18%	3.49
59	4847: MCTC A323 Guildford Road S-N	373	464	91	24%	4.47
61	4823: ATC A324 Dawney Hill N-S	429	336	-93	-22%	4.78
83	3822: MCTC Unclassified Raynes Close E-W	7	0	-7	-100%	3.74
84	3821: MCTC Unclassified Raynes Close W-E	8	0	-8	-100%	4.00
279	1848: RT ATC A247 Kingfield Road E-W	439	403	-36	-8%	1.75
280	1849: RT ATC A247 Kingfield Road W-E	340	326	-14	-4%	0.79
281	3150: MCTC A247 High Street W-E	827	676	-151	-18%	5.52
282	3149: MCTC A247 High Street E-W	523	581	58	11%	2.47
283	3152: MCTC B380 Vicarage Road E-W	319	339	20	6%	1.11
284	3151: MCTC B380 Vicarage Road W-E	519	364	-155	-30%	7.37
285	3148: MCTC A247 Kingfield Road S-N	277	242	-35	-13%	2.18
286	3147: MCTC A247 Kingfield Road N-S	381	312	-69	-18%	3.73
289	2884: MCTC A247 High Street W-E	694	631	-63	-9%	2.43
290	2885: MCTC A247 High Street E-W	769	701	-68	-9%	2.53
291	2881: MCTC B382 High Street W-E	889	767	-122	-14%	4.26
292	2880: MCTC B382 High Street E-W	537	552	15	3%	0.63
318	4552: MCTC D7244 Goldsworth Road N-S	354	336	-18	-5%	0.96
321	2912: MCTC A320 Guildford Road N-S	735	602	-133	-18%	5.16
322	2913: MCTC A320 Guildford Road S-N	447	542	95	21%	4.27
323	2914: MCTC A247 Claremont Avenue N-S	418	318	-100	-24%	5.23
324	2916: MCTC A320 Guildford Road E-W	417	286	-131	-32%	7.02
325	2915: MCTC A320 Guildford Road W-E	547	544	-3	-1%	0.15
326	4110: ATC D3708 White Rose Lane W-E	154	115	-39	-26%	3.40
327	4111: ATC D3708 White Rose Lane E-W	273	252	-21	-8%	1.31
329	4549: MCTC D7244 Goldsworth Road E-W	241	136	-105	-44%	7.68
330	4548: MCTC D7281 Church Street West S-N	609	357	-252	-41%	11.47
331	4547: MCTC D7281 Church Street West N-S	287	200	-87	-30%	5.54
332	4554: MCTC D7242 Forge End S-N	391	241	-150	-38%	8.44
333	4553: MCTC D7242 Forge End N-S	8	13	5	67%	1.65
334	2549: MCTC C143 High Street W-E	231	322	91	40%	5.49
335	2550: MCTC C143 High Street E-W	128	97	-31	-24%	2.89
336	2563: MCTC D3708 Victoria Road E-W	524	351	-173	-33%	8.27
337	2562: MCTC D3708 Victoria Road W-E	685	526	-159	-23%	6.45
339	2597: MCTC D3708 Heathside Car Park N-S	129	109	-20	-15%	1.83
340	2596: MCTC D3708 Heathside Car Park S-N	13	47	34	259%	6.16
343	2576: MCTC D3708 White Rose Lane S-N	31	67	36	115%	5.12
344	2575: MCTC D3708 White Rose Lane N-S	91	92	1	1%	0.07
345	2560: MCTC D3710 Oriental Road W-E	618	470	-148	-24%	6.35
346	2565: MCTC D3708 White Rose Lane S-N	63	70	7	11%	0.85
347	2564: MCTC D3708 White Rose Lane N-S	183	145	-38	-21%	2.95
348	2568: MCTC D3710 Oriental Road W-E	426	400	-26	-6%	1.28

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
349	2566: MCTC D3710 Oriental Road W-E	546	545	-1	0%	0.03
353	2573: MCTC D3710 Park Road W-E	54	50	-4	-8%	0.61
354	2574: MCTC D3710 Park Road E-W	78	74	-4	-5%	0.48
355	1666: ATC D3709 Pembroke Road S-N	230	139	-91	-40%	6.69
356	1665: ATC D3709 Pembroke Road N-S	299	287	-12	-4%	0.68
358	1667: ATC D3709 Pembroke Road E-W	364	443	79	22%	3.95
359	4109: ATC D3708 White Rose Lane E-W	277	252	-25	-9%	1.55
360	4108: ATC D3708 White Rose Lane W-E	155	115	-40	-26%	3.48
361	1651: ATC D3710 Park Road E-W	299	248	-51	-17%	3.06
362	1652: ATC D3710 Park Road W-E	133	165	32	24%	2.61
363	1650: ATC D3710 Park Road W-E	138	296	158	115%	10.74
364	1649: ATC D3710 Park Road E-W	304	290	-14	-5%	0.83
365	2602: MCTC C140 Brewery Road W-E	437	409	-28	-6%	1.36
366	2603: MCTC C140 Brewery Road E-W	245	285	40	17%	2.48
367	2581: MCTC Unclassified The Peacocks Centre Car Park N-S	373	355	-18	-5%	0.96
368	2580: MCTC Unclassified The Peacocks Centre Car Park S-N	15	21	6	40%	1.42
369	2546: MCTC D3662 Chertsey Rd S-N	191	244	53	28%	3.61
370	2547: MCTC C143 The Broadway E-W	270	238	-32	-12%	1.98
371	2548: MCTC C143 The Broadway W-E	182	208	26	14%	1.85
374	2906: MCTC A3046 Chobham Road N-S	466	317	-149	-32%	7.51
375	2907: MCTC A3046 Chobham Road S-N	486	463	-23	-5%	1.08
376	2908: MCTC A3046 Chobham Road S-N	599	555	-44	-7%	1.82
377	2909: MCTC A3046 Chobham Road N-S	689	518	-171	-25%	6.98
378	2911: MCTC C140 Brewery Road E-W	198	277	79	40%	5.14
379	2910: MCTC C140 Brewery Road W-E	308	385	77	25%	4.12
381	2556: MCTC D3662 Church Street East W-E	90	85	-5	-6%	0.58
382	2552: MCTC C143 Chertsey Road S-N	361	379	18	5%	0.95
384	2590: MCTC D3710 Oriental Road E-W	386	385	-1	0%	0.04
385	2591: MCTC D3710 Oriental Road W-E	483	365	-118	-24%	5.74
387	2824: MCTC C143 The Broadway E-W	268	238	-30	-11%	1.86
388	2569: MCTC D3710 Oriental Road E-W	353	303	-50	-14%	2.79
389	2570: MCTC D3710 Oriental Road W-E	507	363	-144	-28%	6.90
391	2593: MCTC D3710 Oriental Road E-W	364	303	-61	-17%	3.37
393	2822: MCTC C143 Stanley Road S-N	548	428	-120	-22%	5.45
394	2821: MCTC C143 Stanley Road N-S	157	118	-39	-25%	3.34
395	3583: MCC C143 Maybury Road E-W	324	282	-42	-13%	2.41
396	2553: MCTC C143 Stanley Road E-W	396	361	-35	-9%	1.78
397	2554: MCTC C143 Stanley Road W-E	303	183	-120	-40%	7.68
398	353: Partial A3046 Chobham Road S-N	420	463	43	10%	2.02
402	32: Partial A320 Chertsey Road S-N	633	544	-89	-14%	3.67
404	1663: ATC D3709 Pembroke Road S-N	111	139	28	25%	2.51
405	1664: ATC D3709 Pembroke Road N-S	196	291	95	48%	6.08
407	355: Partial C144 Maybury Hill S-N	215	243	28	13%	1.88
408	1878: RT ATC C144 Maybury Hill N-S	176	161	-15	-9%	1.15
410	43: Partial D3731 East Hill W-E	386	366	-20	-5%	1.01
412	1881: RT ATC D3731 East Hill W-E	295	366	71	24%	3.92
413	1880: RT ATC D3731 East Hill E-W	257	273	16	6%	0.97
417	4731: MCTC C143 Walton Road W-E	479	488	9	2%	0.43
420	4606: MCTC D3668 Albert Drive E-W	260	208	-52	-20%	3.39
421	4607: MCTC D3668 Albert Drive W-E	648	607	-41	-6%	1.65
424	3646: MCC D3670 Forsyth Road E-W	33	18	-15	-45%	2.95
425	4307: ATC D3668 Albert Drive S-N	444	339	-105	-24%	5.32
426	4308: ATC D3668 Albert Drive N-S	429	353	-76	-18%	3.87
427	4290: ATC A3046 Chobham Road E-W	756	617	-139	-18%	5.31
429	1858: RT ATC A320 Chertsey Road S-N	712	526	-186	-26%	7.49
430	1859: RT ATC A320 Chertsey Road N-S	717	582	-135	-19%	5.29
431	4284: ATC A320 Chertsey Road S-N	878	634	-244	-28%	8.89
432	4285: ATC A320 Chertsey Road N-S	899	650	-249	-28%	8.94
434	1585: ATC D3782 Martyrs Lane S-N	350	325	-25	-7%	1.38
435	1583: ATC D3782 Martyrs Lane S-N	333	325	-8	-3%	0.46
436	1584: ATC D3782 Martyrs Lane N-S	180	108	-72	-40%	5.95
437	1582: ATC A245 Woodham Lane E-W	617	477	-140	-23%	5.99
438	1581: ATC A245 Woodham Lane W-E	823	849	26	3%	0.91

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
439	4242: ATC A320 Guildford Road N-S	1090	802	-288	-26%	9.36
441	2042: ATC B367 Newark Lane N-S	301	340	39	13%	2.17
442	2041: ATC B367 Newark Lane S-N	438	471	33	8%	1.56
443	4294: ATC D3744 Lock Lane W-E	191	206	15	8%	1.07
444	4295: ATC D3744 Lock Lane E-W	92	100	8	9%	0.85
454	4309: ATC D3668 Albert Drive W-E	215	195	-20	-9%	1.40
455	4310: ATC D3668 Albert Drive E-W	315	301	-14	-5%	0.82
456	3715: MCC D3743 Coldharbour Road W-E	99	96	-3	-3%	0.32
457	3716: MCC D3743 Coldharbour Road E-W	85	6	-79	-93%	11.71
460	2750: MCTC A245 Sheerwater Road N-S	860	733	-127	-15%	4.48
461	2751: MCTC A245 Sheerwater Road S-N	716	668	-48	-7%	1.81
462	2752: MCTC A245 Sheerwater Road S-N	712	706	-6	-1%	0.22
463	2753: MCTC A245 Sheerwater Road N-S	873	783	-90	-10%	3.14
464	2755: MCTC D3668 Albert Drive E-W	364	294	-70	-19%	3.87
465	2754: MCTC D3668 Albert Drive W-E	381	305	-76	-20%	4.09
467	2610: MCTC D3759 Station Approach N-S	264	240	-24	-9%	1.48
468	2612: MCTC D3759 Station Approach S-N	151	218	67	44%	4.90
469	2613: MCTC D3759 Station Approach N-S	241	221	-20	-8%	1.32
473	3138: MCTC D3057 Woodham Park Road N-S	250	188	-62	-25%	4.18
474	3135: MCTC D3062 Queen Marys Drive E-W	167	180	13	8%	0.99
475	3136: MCTC D3062 Queen Marys Drive W-E	178	149	-29	-16%	2.23
476	3140: MCTC D3057 Woodham Park Road E-W	330	337	7	2%	0.41
477	3139: MCTC D3057 Woodham Park Road W-E	372	319	-53	-14%	2.85
478	4305: ATC D3758 Dartnell Avenue W-E	10	18	8	82%	2.17
479	4306: ATC D3758 Dartnell Avenue E-W	15	23	8	53%	1.83
482	1569: ATC A322 Oyster Lane S-N	575	445	-130	-23%	5.75
483	1570: ATC A323 Oyster Lane N-S	638	568	-70	-11%	2.85
484	1959: ATC A245 Parvis Road W-E	683	645	-38	-6%	1.48
485	1960: ATC A245 Parvis Road E-W	740	763	23	3%	0.85
487	3355: MCC A245 Parvis Road E-W	899	825	-74	-8%	2.54
1559	4243: ATC A320 Guildford Road S-N	956	754	-202	-21%	6.90
1560	4244: ATC A320 Guildford Road N-S	909	612	-297	-33%	10.75
1561	1999: ATC A320 Guildford Road S-N	805	754	-51	-6%	1.82
1564	4091: ATC A320 Guildford Road N-S	920	612	-308	-33%	11.11
1565	1996: ATC A319 Chobham Road W-E	389	336	-53	-14%	2.79
1566	1995: ATC A319 Chobham Road E-W	201	125	-76	-38%	5.98
1571	3514: MCC B386 Longcross Road E-W	169	147	-22	-13%	1.75
1573	3983: MCTC B386 Holloway Hill E-W	661	578	-83	-13%	3.35
1574	310: Partial D7008 Lyne Lane S-N	276	180	-96	-35%	6.37
1575	311: Partial D7008 Lyne Lane N-S	345	387	42	12%	2.20
1576	313: Partial C127 Bridge Lane E-W	232	221	-11	-5%	0.76
1577	312: Partial C127 Bridge Lane W-E	314	308	-6	-2%	0.32
1578	308: Partial D3005 Almnors Road W-E	75	57	-18	-24%	2.25
1579	309: Partial D3005 Almnors Road E-W	213	167	-46	-21%	3.30
1580	307: Partial C127 Hardwick Lane N-S	466	259	-207	-44%	10.85
1581	306: Partial C127 Hardwick Lane S-N	412	579	167	41%	7.52
1583	3435: MCC M25 J12 - J11 N-S	7068	5965	-1103	-16%	13.66
1584	2355: TRADS M25 M25 J12 clockwise - M3 J2 S-N	2041	2226	185	9%	4.01
1589	3551: MCC B3121 Spinney Hill W-E	371	191	-180	-49%	10.76
1590	3552: MCC B3121 Spinney Hill E-W	360	369	9	2%	0.46
1592	9014: ASS* M25 CW Within J11	5819	5422	-397	-7%	5.30
1593	2362: TRADS M25 M25 J11 clockwise exit S-N	1110	1196	86	8%	2.53
1594	2361: TRADS M25 M25 J11 anti-clockwise access N-S	486	182	-304	-63%	16.65
1595	9020: ASS* M25 AC Within J11	4896	5135	239	5%	3.38
1598	1567: ATC A320 Byfleet Road N-S	768	524	-244	-32%	9.62
1599	1568: ATC A321 Byfleet Road S-N	542	392	-150	-28%	6.94
1600	1993: ATC A318 Byfleet Road N-S	580	468	-112	-19%	4.90
1601	1994: ATC A318 Byfleet Road S-N	439	356	-83	-19%	4.14
1603	1566: ATC A319 New Haw Road S-N	745	481	-264	-35%	10.68
1612	4833: MCC B3121 Station Road N-S	385	336	-49	-13%	2.58
1613	4832: MCC B3121 Station Road S-N	378	280	-98	-26%	5.38
1614	1991: ATC A317 Weybridge Road W-E	652	412	-240	-37%	10.38
1615	1992: ATC A317 Weybridge Road E-W	1026	980	-46	-4%	1.45

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
1644	3980: MCTC A320 Guildford Road S-N	670	897	227	34%	8.09
1645	3981: MCTC A320 Guildford Road N-S	975	739	-236	-24%	8.07
1646	3979: MCTC A320 Guildford Road S-N	908	609	-299	-33%	10.87
1647	3978: MCTC A320 Guildford Road N-S	785	784	-1	0%	0.05
1648	1855: RT ATC A317 St Peters Way East E-W	717	932	215	30%	7.50
1649	2364: TRADS M25 M25 J11 clockwise access S-N	1653	1597	-56	-3%	1.39
1650	2359: TRADS M25 M25 J11 anti-clockwise exit N-S	1658	830	-828	-50%	23.47
1654	1600: ATC A317 Chertsey Road S-N	1095	868	-227	-21%	7.25
1655	1599: ATC A317 Chertsey Road N-S	256	195	-61	-24%	4.07
1656	3348: MCC A317 Eastworth Road W-E	377	385	8	2%	0.42
1657	3349: MCC A317 Eastworth Road E-W	779	680	-99	-13%	3.67
1658	2703: MCTC B387 Weir Road N-S	371	308	-63	-17%	3.44
1659	2702: MCTC B387 Weir Road S-N	590	391	-199	-34%	9.01
1668	4469: MCC B375 Chertsey Bridge E-W	847	746	-101	-12%	3.57
1669	4470: MCC B375 Chertsey Bridge W-E	883	671	-212	-24%	7.62
1672	2626: MCTC B389 Sandhills Lane E-W	356	369	13	4%	0.68
1673	2627: MCTC B389 Sandhills Lane W-E	346	315	-31	-9%	1.70
1674	2628: MCTC C10 Trumps Green Road S-N	361	457	96	27%	4.75
1676	127: Partial B389 Sandhills E-W	359	369	10	3%	0.52
1677	551: Partial B389 Sandhills W-E	349	315	-34	-10%	1.86
1678	2630: MCTC B389 Christchurch Road W-E	409	392	-17	-4%	0.84
1679	2631: MCTC B389 Christchurch Road E-W	464	463	-1	0%	0.05
1682	2200: TRADS M3 M3 J2 eastbound to M25 J12 W-E	3558	3852	294	8%	4.83
1686	2202: TRADS M3 M25 J12 clockwise to M3 J2 eastbound W-E	810	695	-115	-14%	4.19
1687	2199: TRADS M3 M25 J12 clockwise to M3 J2 westbound E-W	1363	1531	168	12%	4.42
1688	2197: TRADS M3 M3 J2 westbound to M25 J12 E-W	1678	1267	-411	-25%	10.72
1691	2352: TRADS M25 M25 J12 anti-clockwise - M3 J2 N-S	2054	2025	-29	-1%	0.65
1692	3527: MCC B388 Thorpe By-Pass S-N	505	531	26	5%	1.15
1693	3528: MCC B388 Thorpe By-Pass N-S	409	410	1	0%	0.06
1694	9018: ASS* M25 AC J13 - J12	6644	5879	-765	-12%	9.67
1695	9017: ASS* M25 CW J12 - J13	8052	7800	-252	-3%	2.83
1698	4245: ATC C10 Stroude Road S-N	420	380	-40	-9%	1.98
1699	4246: ATC C10 Stroude Road N-S	215	207	-8	-4%	0.57
1744	3503: MCC A320 Staines Road S-N	538	588	50	9%	2.10
1745	3504: MCC A320 Staines Road N-S	587	569	-18	-3%	0.73
1752	1997: ATC A320 Chertsey Lane S-N	666	686	20	3%	0.77
1753	1998: ATC A320 Chertsey Lane N-S	508	510	2	0%	0.10
2177	3549: MCC B3007 Weybourne Road W-E	488	450	-38	-8%	1.73
2178	3550: MCC B3007 Weybourne Road E-W	530	476	-54	-10%	2.39
2179	2086: ATC B3007 Weybourne Road W-E	454	450	-4	-1%	0.17
2180	2085: ATC B3007 Weybourne Road E-W	476	476	0	0%	0.02
2183	2094: ATC B3208 Badshot Lea Road S-N	286	272	-14	-5%	0.83
2184	2093: ATC B3208 Badshot Lea Road N-S	501	473	-28	-6%	1.27
2185	423: Partial Bourley Road E-W	166	127	-39	-24%	3.23
2186	424: Partial Bourley Road W-E	569	434	-135	-24%	6.03
2187	2050: ATC B385 Woodham Lane W-E	420	413	-7	-2%	0.36
2188	2049: ATC B385 Woodham Lane E-W	451	393	-58	-13%	2.84
2196	429: Partial A323 Norris Hill Road W-E	676	641	-35	-5%	1.36
2197	430: Partial A323 Norris Hill Road E-W	356	336	-20	-5%	1.05
2198	2221: TRADS M3 Junction 4a - 5 W-E	3620	3532	-88	-2%	1.47
2199	2222: TRADS M3 Junction 5 - 4a E-W	3567	3845	278	8%	4.57
2202	397: Partial B3013 Minley Road S-N	343	278	-65	-19%	3.71
2203	398: Partial B3013 Minley Road N-S	303	312	9	3%	0.50
2207	426: Partial B3014 Fleet Road E-W	759	775	16	2%	0.58
2208	9012: ASS* M3 WB Within J4a	3170	3047	-123	-4%	2.21
2209	9000: ASS* M3 EB Within J4a	3371	3188	-183	-5%	3.20
2210	2219: TRADS M3 M3 J4A eastbound exit W-E	655	658	3	0%	0.11
2211	379: Partial A327 Minley Road N-S	788	841	53	7%	1.85
2212	380: Partial A327 Minley Road S-N	529	659	130	25%	5.33
2213	2217: TRADS M3 M3 J4A westbound exit E-W	888	979	91	10%	2.97
2215	2215: TRADS M3 Junction 4 - 4a E-W	3831	4026	195	5%	3.10
2216	9001: ASS* M3 EB J4a - J4	4452	4799	347	8%	5.10
2223	372: Partial A30 Hartford Bridge Flats W-E	467	517	50	11%	2.26

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
2224	371: Partial A30 Hartford Bridge Flats E-W	568	504	-64	-11%	2.75
2234	4297: ATC D3744 Wisley Lane N-S	91	100	9	10%	0.96
2235	4296: ATC D3744 Wisley Lane S-N	188	206	18	10%	1.29
2238	399: Partial A30 London Road W-E	519	591	72	14%	3.07
2242	2213: TRADS M3 M3 J4 eastbound exit W-E	1128	966	-162	-14%	5.01
2249	4605: MCTC C144 Monument Road S-N	508	434	-74	-15%	3.42
2250	3428: MCC A331 Blackwater Valley Road N-S	3135	3191	56	2%	0.99
2251	2211: TRADS M3 M3 J4 westbound exit E-W	1486	1582	96	6%	2.45
2252	3427: MCC A331 Blackwater Valley Road S-N	3267	3205	-62	-2%	1.09
2253	2011: ATC A325 Frimley Bypass W-E	1313	1198	-115	-9%	3.25
2254	2012: ATC A325 Frimley Bypass E-W	822	816	-6	-1%	0.21
2255	1158: Partial A331 Blackwater Valley Road S-N	2355	2114	-241	-10%	5.09
2257	4197: ATC A331 Blackwater Valley Road N-S	1909	1827	-82	-4%	1.91
2258	4196: ATC A331 Blackwater Valley Road S-N	2044	2114	70	3%	1.54
2259	987: Partial M3 J4 within junction SB N-S	2773	2971	198	7%	3.70
2260	3698: MCC D3433 Bain Avenue N-S	46	44	-2	-5%	0.31
2261	3697: MCC D3433 Bain Avenue S-N	12	9	-3	-21%	0.77
2262	1711: ATC B3411 Frimley Road S-N	1257	1476	219	17%	5.91
2263	1712: ATC B3411 Frimley Road N-S	774	882	108	14%	3.74
2267	431: Partial B3272 Hawley Road S-N	321	360	39	12%	2.11
2268	432: Partial B3272 Hawley Road N-S	362	447	85	23%	4.21
2273	3210: MCTC A331 Blackwater Valley Road N-S	1698	1775	77	5%	1.86
2274	3209: MCTC A331 Blackwater Valley Road S-N	1508	1355	-153	-10%	4.05
2276	4205: ATC A331 Blackwater Valley Road N-S	1762	1969	207	12%	4.80
2277	3203: MCTC A331 Blackwater Valley Road S-N	1340	1249	-91	-7%	2.54
2278	3204: MCTC A331 Blackwater Valley Road N-S	1569	1703	134	9%	3.31
2279	3201: MCTC D3571 Riverside Way E-W	73	57	-16	-21%	1.94
2280	3202: MCTC D3571 Riverside Way W-E	275	266	-9	-3%	0.53
2292	3249: MCTC A331 Blackwater Valley Road N-S	1470	1527	57	4%	1.48
2294	3217: MCTC A331 Blackwater Valley Road N-S	1462	1527	65	4%	1.69
2296	3219: MCTC D3425 Stanhope Road E-W	615	487	-128	-21%	5.43
2297	3207: MCTC Unclassified Sainsburys E-W	180	172	-8	-5%	0.64
2298	3208: MCTC Unclassified Sainsburys W-E	270	205	-65	-24%	4.20
2299	4202: ATC B3411 Frimley Road S-N	547	577	30	5%	1.26
2300	4203: ATC B3411 Frimley Road N-S	665	638	-27	-4%	1.06
2303	3861: MCTC D3424 Surrey Avenue S-N	49	72	23	48%	2.99
2304	3862: MCTC D3424 Surrey Avenue N-S	23	23	0	0%	0.01
2306	3864: MCTC D3426 Vale Road E-W	136	81	-55	-40%	5.26
2307	2660: MCTC D3424 Queen Mary Avenue S-N	5	20	15	290%	4.14
2308	2661: MCTC D3424 Queen Mary Avenue N-S	6	1	-5	-76%	2.35
2309	3858: MCTC D3424 Victoria Avenue S-N	35	44	9	26%	1.45
2311	3241: MCTC B3411 Frimley Road S-N	636	676	40	6%	1.57
2312	3242: MCTC B3411 Frimley Road N-S	583	606	23	4%	0.92
2313	3238: MCTC B3411 Frimley Road S-N	535	582	47	9%	1.99
2314	3237: MCTC B3411 Frimley Road N-S	500	442	-58	-12%	2.66
2316	3239: MCTC D3517 The Avenue E-W	151	181	30	20%	2.30
2320	1788: ATC A321 Marshall Road N-S	1270	1413	143	11%	3.91
2331	3195: MCTC D3576 Tank Road S-N	338	264	-74	-22%	4.27
2332	3196: MCTC D3576 Tank Road N-S	212	85	-127	-60%	10.43
2334	4198: ATC A321 Marshall Road S-N	876	796	-80	-9%	2.76
2340	3181: MCTC D3425 Yorktown Way N-S	401	443	42	10%	2.02
2341	3180: MCTC D3425 Yorktown Way S-N	59	175	116	196%	10.70
2342	3194: MCTC D3576 Laundry Lane W-E	993	1052	59	6%	1.85
2343	3178: MCTC A30 London Road E-W	823	845	22	3%	0.78
2344	3179: MCTC A30 London Road W-E	1295	1186	-109	-8%	3.10
2346	2662: MCTC D3425 Stanhope Road W-E	127	176	49	38%	3.95
2349	3799: MCTC B3411 Frimley Road N-S	460	398	-62	-13%	3.00
2350	3800: MCTC B3411 Frimley Road S-N	467	408	-59	-13%	2.81
2351	3804: MCTC D3424 Edward Avenue E-W	177	318	141	80%	8.97
2352	3803: MCTC D3424 Edward Avenue W-E	145	156	11	7%	0.87
2353	3802: MCTC B3411 Frimley Road N-S	414	408	-6	-1%	0.28
2354	3801: MCTC B3411 Frimley Road S-N	453	501	48	11%	2.19
2355	2683: MCTC D3424 Victoria Avenue N-S	18	18	0	3%	0.11

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
2356	2682: MCTC D3424 Victoria Avenue S-N	58	98	40	69%	4.52
2357	2685: MCTC D3424 Queen Mary Avenue E-W	299	305	6	2%	0.36
2358	2684: MCTC D3424 Queen Mary Avenue W-E	143	174	31	22%	2.47
2360	2678: MCTC D3424 Victoria Avenue N-S	48	52	4	8%	0.54
2361	3173: MCTC D3424 Victoria Avenue S-N	63	163	100	158%	9.39
2362	3174: MCTC D3424 Victoria Avenue N-S	54	52	-2	-4%	0.31
2363	3740: MCC D3426 Vale Road E-W	147	53	-94	-64%	9.40
2366	3171: MCTC A30 London Road E-W	647	735	88	14%	3.33
2367	4254: ATC A30 London Road E-W	872	845	-27	-3%	0.90
2368	4253: ATC A30 London Road W-E	1318	1186	-132	-10%	3.73
2370	3244: MCTC A30 London Road W-E	1000	998	-2	0%	0.06
2371	3246: MCTC B3411 Frimley Road N-S	342	398	56	16%	2.91
2373	3248: MCTC A30 London Road E-W	793	735	-58	-7%	2.12
2374	3247: MCTC A30 London Road W-E	1145	1186	41	4%	1.20
2376	3158: MCTC A30 London Road E-W	700	536	-164	-23%	6.58
2378	3155: MCTC D3517 The Avenue S-N	59	37	-22	-38%	3.23
2379	4251: ATC A30 London Road W-E	992	849	-143	-14%	4.73
2380	4252: ATC A30 London Road E-W	791	676	-115	-15%	4.24
2381	3163: MCTC D3517 The Avenue S-N	208	241	33	16%	2.22
2382	3164: MCTC D3517 The Avenue N-S	213	226	13	6%	0.90
2385	3160: MCTC D3517 The Avenue S-N	132	140	8	6%	0.71
2387	3162: MCTC D3516 Southwell Park Road W-E	328	338	10	3%	0.54
2389	3233: MCTC D3514 Park Street S-N	467	414	-53	-11%	2.54
2390	3234: MCTC D3514 Park Street N-S	342	284	-58	-17%	3.26
2392	3230: MCTC D3514 Park Street N-S	15	23	8	55%	1.89
2393	3232: MCTC D3514 Pembroke Broadway W-E	528	586	58	11%	2.45
2394	3235: MCTC D3516 Southwell Park Road W-E	486	506	20	4%	0.89
2395	3236: MCTC D3516 Southwell Park Road E-W	366	357	-9	-2%	0.47
2398	3165: MCTC A30 London Road E-W	642	805	163	25%	6.05
2400	3168: MCTC D3515 Lower Charles Street N-S	302	263	-39	-13%	2.34
2401	3167: MCTC D3515 Lower Charles Street S-N	137	203	66	48%	5.09
2410	2598: MCTC C140 Brewery Road E-W	253	277	24	10%	1.49
2411	2599: MCTC C140 Brewery Road W-E	429	385	-44	-10%	2.20
2412	2594: MCTC A320 Victoria Way Car Park N-S	192	148	-44	-23%	3.37
2419	4289: ATC A320 Chertsey Road N-S	1088	802	-286	-26%	9.30
2420	4288: ATC A320 Chertsey Road S-N	1014	799	-215	-21%	7.15
2421	304: Partial C127 Lyne Crossing Road S-N	282	475	193	68%	9.92
2422	305: Partial C127 Lyne Crossing Road N-S	482	266	-216	-45%	11.19
2431	2600: MCTC Unclassified Brewery Road Car Park S-N	12	14	2	14%	0.46
2432	2601: MCTC Unclassified Brewery Road Car Park N-S	28	30	2	7%	0.36
2433	2589: MCTC Private Woking Station Car Park S-N	72	83	11	15%	1.22
2434	2588: MCTC Private Woking Station Car Park N-S	2	2	0	-10%	0.15
2435	3326: MCC D3406 Foxhills Road N-S	124	145	21	17%	1.80
2436	3325: MCC D3406 Foxhills Road S-N	173	93	-80	-46%	6.95
2622	3907: MCTC A3 Connaught Road W-E	411	368	-43	-11%	2.20
2634	4511: MCTC A324 Dawney Hill S-N	277	215	-62	-22%	3.97
2635	4512: MCTC A324 Dawney Hill N-S	434	336	-98	-23%	5.02
2725	3509: MCC A331 Blackwater Valley Road S-N	2255	2189	-66	-3%	1.40
2726	3510: MCC A331 Blackwater Valley Road N-S	2309	2277	-32	-1%	0.67
2733	3588: MCC C119 The Street S-N	274	271	-3	-1%	0.18
2734	3589: MCC C119 The Street N-S	442	439	-3	-1%	0.15
2737	2007: ATC A323 Aldershot Road W-E	654	622	-32	-5%	1.28
2738	2008: ATC A323 Aldershot Road E-W	853	645	-208	-24%	7.59
2739	4850: MCTC A323 Church Road S-N	364	467	103	28%	5.07
2740	4851: MCTC A323 Church Road N-S	345	275	-70	-20%	3.99
2741	4849: MCTC C18 Foreman Road S-N	34	34	0	1%	0.07
2742	4848: MCTC C18 Foreman Road N-S	45	44	-1	-2%	0.15
2743	3557: MCC B3411 Vale Road S-N	515	554	39	8%	1.68
2744	3558: MCC B3411 Vale Road N-S	372	359	-13	-4%	0.71
2988	3960: MCC B3411 Vale Road S-N	707	701	-6	-1%	0.23
2989	3961: MCC B3411 Vale Road N-S	398	479	81	20%	3.89
2990	3956: MCTC B3166 Lysons Avenue S-N	541	486	-55	-10%	2.41
2991	3957: MCTC B3166 Lysons Avenue N-S	551	440	-111	-20%	4.98

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
2992	3958: MCTC B3166 Lynchford Road W-E	688	766	78	11%	2.89
2993	3959: MCTC B3166 Lynchford Road E-W	866	803	-63	-7%	2.18
2994	3955: MCTC B3165 Stratford Road S-N	397	374	-23	-6%	1.18
2995	3954: MCTC B3165 Stratford Road N-S	585	541	-44	-8%	1.87
2996	4220: ATC D3455 Mytchett Place Road W-E	444	467	23	5%	1.08
2997	4221: ATC D3455 Mytchett Place Road E-W	328	297	-31	-10%	1.77
2998	4216: ATC B3012 Guildford Road W-E	379	405	26	7%	1.32
2999	4217: ATC B3012 Guildford Road E-W	192	188	-4	-2%	0.29
3000	848: Partial Lake Road W-E	411	411	0	0%	0.01
3001	849: Partial Lake Road E-W	403	402	-1	0%	0.04
3002	882: Partial Tunnel Hill Road (Mytchett) S-N	418	467	49	12%	2.33
3003	883: Partial Tunnel Hill Road (Mytchett) N-S	283	297	14	5%	0.80
3006	878: Partial Tunnel Hill Road (Pirbright) S-N	215	233	18	9%	1.23
3010	2956: MCTC B3015 Deepcut Bridge Road N-S	265	276	11	4%	0.67
3011	2955: MCTC B3015 Deepcut Bridge Road S-N	134	138	4	3%	0.32
3012	2958: MCTC D3474 Lake Road E-W	394	402	8	2%	0.42
3013	2957: MCTC D3474 Lake Road W-E	390	411	21	5%	1.06
3014	4218: ATC B3012 Gapemouth Road W-E	589	478	-111	-19%	4.79
3015	4219: ATC B3012 Gapemouth Road E-W	301	255	-46	-15%	2.77
3016	2010: ATC A324 Aldershot Road S-N	383	356	-27	-7%	1.41
3017	2009: ATC A324 Aldershot Road N-S	285	285	0	0%	0.00
3020	3620: MCC D49 Mill Lane S-N	34	60	26	78%	3.85
3021	3621: MCC D49 Mill Lane N-S	32	48	16	51%	2.58
3022	4734: MCTC D45 Vapery Lane E-W	27	1	-26	-97%	7.02
3023	4733: MCTC D45 Vapery Lane W-E	15	1	-14	-96%	5.17
3024	2873: MCTC B3405 School Lane E-W	304	310	6	2%	0.34
3025	2872: MCTC B3405 School Lane W-E	324	382	58	18%	3.07
3026	2871: MCTC A324 Pirbright Green N-S	732	717	-15	-2%	0.55
3027	2870: MCTC A324 Pirbright Green S-N	414	525	111	27%	5.11
3030	4514: MCTC B3012 Gole Road E-W	246	166	-80	-32%	5.57
3031	4513: MCTC B3012 Gole Road W-E	645	478	-167	-26%	7.06
3035	4508: MCTC A324 Dawney Hill N-S	455	449	-6	-1%	0.29
3036	4506: MCTC A324 Connaught Road W-E	320	377	57	18%	3.06
3037	4505: MCTC A324 Connaught Road E-W	383	297	-86	-23%	4.68
3039	4503: MCTC D44 Brunswick Road N-S	206	222	16	8%	1.08
3042	4601: MCTC D44 Queens Road S-N	252	292	40	16%	2.44
3043	4600: MCTC D44 Queens Road N-S	108	108	0	0%	0.04
3046	3914: MCTC D3000 Cemetery Pales E-W	249	242	-7	-3%	0.46
3047	3913: MCTC D3000 Cemetery Pales W-E	261	213	-48	-18%	3.10
3048	3905: MCTC A322 Bagshot Road S-N	713	673	-40	-6%	1.51
3049	3906: MCTC A322 Bagshot Road N-S	668	477	-191	-29%	7.99
3050	3912: MCTC A322 Bagshot Road N-S	403	284	-119	-29%	6.41
3051	3911: MCTC A322 Bagshot Road S-N	459	460	1	0%	0.03
3053	1549: ATC D3680 Blackhorse Road N-S	617	750	133	21%	5.07
3054	1551: ATC D3680 Blackhorse Road N-S	286	285	-1	0%	0.05
3056	3502: MCC A324 Brookwood Lye Road N-S	786	635	-151	-19%	5.66
3057	3501: MCC A324 Brookwood Lye Road S-N	730	688	-42	-6%	1.58
3058	3320: MCC B3411 Frimley High Street S-N	944	854	-90	-10%	3.00
3059	3319: MCC B3411 Frimley High Street N-S	795	781	-14	-2%	0.50
3060	3934: MCTC B3411 Church Road W-E	576	613	37	6%	1.52
3061	3935: MCTC B3411 Church Road E-W	492	516	24	5%	1.05
3062	3933: MCTC B3411 Frimley Green Road N-S	438	434	-4	-1%	0.17
3063	3932: MCTC B3411 Frimley Green Road S-N	492	501	9	2%	0.42
3066	3930: MCTC B3411 Grove Cross Road N-S	70	80	10	14%	1.13
3067	3931: MCTC B3411 Grove Cross Road S-N	208	229	21	10%	1.40
3068	2648: MCTC D3488 Old Bisley Road W-E	188	180	-8	-4%	0.57
3069	2649: MCTC D3488 Old Bisley Road E-W	350	218	-132	-38%	7.83
3070	2666: MCTC B3015 Deepcut Bridge Road S-N	480	460	-20	-4%	0.94
3071	2667: MCTC B3015 Deepcut Bridge Road N-S	415	482	67	16%	3.15
3072	2668: MCTC D3488 Old Bisley Road W-E	158	158	0	0%	0.01
3073	2669: MCTC D3488 Old Bisley Road E-W	151	143	-8	-5%	0.67
3074	2645: MCTC D3488 Edgemoor Road S-N	127	125	-2	-2%	0.20
3075	2644: MCTC D3488 Edgemoor Road N-S	240	134	-106	-44%	7.76

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
3076	2647: MCTC D3488 Old Bisley Road W-E	145	189	44	31%	3.42
3077	2646: MCTC D3488 Old Bisley Road E-W	194	218	24	12%	1.67
3078	2665: MCTC B3015 The Maultway S-N	438	440	2	0%	0.09
3079	2664: MCTC B3015 The Maultway N-S	366	447	81	22%	4.01
3081	913: Partial Martindale Avenue N-S	169	228	59	35%	4.16
3082	915: Partial D3493 Cumberland Road (west) E-W	193	126	-67	-35%	5.35
3083	914: Partial D3493 Cumberland Road (west) W-E	189	148	-41	-21%	3.13
3084	910: Partial D3493 Cumberland Road (east) W-E	144	207	63	44%	4.77
3085	911: Partial D3493 Cumberland Road (east) E-W	139	112	-27	-19%	2.38
3086	3223: MCTC D3512 High Street S-N	202	130	-72	-36%	5.62
3087	3227: MCTC D3528 Heathcote Road N-S	141	127	-14	-10%	1.17
3088	3226: MCTC D3528 Heathcote Road S-N	256	182	-74	-29%	5.00
3089	3229: MCTC D3514 Pembroke Broadway E-W	302	336	34	11%	1.91
3092	3224: MCTC D3511 Portesbery Road E-W	384	397	13	3%	0.65
3096	3709: MCC D3528 Upper Gordon Road S-N	21	252	231	1101%	19.78
3097	1783: ATC D3526 Church Hill W-E	639	331	-308	-48%	13.99
3098	1784: ATC D3526 Church Hill E-W	829	336	-493	-59%	20.41
3099	3669: MCC D3525 Waverley Drive S-N	40	85	45	111%	5.64
3100	3670: MCC D3525 Waverley Drive N-S	17	62	45	264%	7.15
3102	3189: MCTC D3512 Knoll Road N-S	607	649	42	7%	1.67
3104	4249: ATC A30 London Road W-E	672	731	59	9%	2.22
3105	3185: MCTC D3402 Kings Ride S-N	267	107	-160	-60%	11.74
3106	3184: MCTC D3402 Kings Ride N-S	363	287	-76	-21%	4.24
3107	1834: RT ATC A30 London Road W-E	392	366	-26	-7%	1.32
3108	1835: RT ATC A30 London Road E-W	572	496	-76	-13%	3.28
3109	851: Partial D3489 Prior Road N-S	615	440	-175	-28%	7.62
3110	850: Partial D3489 Prior Road S-N	744	451	-293	-39%	11.96
3111	3389: MCC M3 J3 - J4 N-S	4239	4553	314	7%	4.74
3113	4451: ATC D3404 College Ride W-E	278	118	-160	-58%	11.40
3115	4453: ATC D3404 College Ride W-E	280	149	-131	-47%	8.98
3116	4454: ATC D3404 College Ride E-W	231	216	-15	-6%	0.99
3117	4455: ATC D3404 College Ride W-E	281	182	-99	-35%	6.51
3118	4456: ATC D3404 College Ride E-W	305	286	-19	-6%	1.10
3124	3850: MCTC B311 Red Road E-W	471	514	43	9%	1.95
3125	1753: ATC B311 Red Road W-E	988	958	-30	-3%	0.97
3126	1754: ATC B311 Red Road E-W	678	585	-93	-14%	3.69
3127	3485: MCC A30 London Road N-S	898	860	-38	-4%	1.30
3128	3484: MCC A30 London Road S-N	1540	1384	-156	-10%	4.09
3129	823: Partial D18 MacDonald Road N-S	140	109	-31	-22%	2.80
3130	822: Partial D18 MacDonald Road S-N	186	252	66	36%	4.48
3131	9010: ASS* M3 WB Within J3	3859	3823	-36	-1%	0.57
3132	2207: TRADS M3 M3 J3 eastbound exit W-E	1174	1209	35	3%	1.01
3133	9004: ASS* M3 EB Within J3	4278	4299	21	0%	0.32
3134	3829: MCTC D31 Queens Road W-E	241	292	51	21%	3.14
3135	3830: MCTC D31 Queens Road E-W	153	108	-45	-30%	3.98
3137	4818: ATC A330 Guildford Road S-N	621	604	-17	-3%	0.69
3139	3823: MCTC A322 Guildford Road N-S	715	695	-20	-3%	0.74
3142	3649: MCC D3602 Oak Tree Road W-E	79	84	5	6%	0.56
3143	3650: MCC D3602 Oak Tree Road E-W	25	37	12	49%	2.19
3146	4820: ATC A332 Guildford Road S-N	493	464	-29	-6%	1.31
3147	4821: ATC A333 Guildford Road N-S	909	703	-206	-23%	7.27
3148	509: Partial C11 Chobham Road S-N	216	228	12	5%	0.79
3149	510: Partial C11 Chobham Road N-S	183	112	-71	-39%	5.85
3150	301: Partial C11 Chobham Road N-S	183	126	-57	-31%	4.58
3151	300: Partial C11 Chobham Road S-N	315	425	110	35%	5.74
3153	1547: ATC C12 High Street E-W	282	202	-80	-28%	5.16
3154	507: Partial C12 High Street E-W	286	303	17	6%	1.01
3155	3703: MCC D7223 Raglan Road S-N	109	100	-9	-9%	0.91
3156	3704: MCC D7223 Raglan Road N-S	236	238	2	1%	0.12
3158	299: Partial C12 High Street N-S	445	347	-98	-22%	4.94
3159	297: Partial D3605 Lower Guildford Road N-S	451	443	-8	-2%	0.40
3160	296: Partial D3605 Lower Guildford Road S-N	565	360	-205	-36%	9.51
3162	18: Partial C12 Anchor Hill N-S	522	537	15	3%	0.66

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
3171	3733: MCC D7306 Robin Hood Road W-E	169	181	12	7%	0.92
3172	3734: MCC D7306 Robin Hood Road E-W	81	93	12	15%	1.31
3173	4304: ATC D3624 Barrs Lane W-E	316	366	50	16%	2.72
3174	4303: ATC D3624 Barrs Lane E-W	380	391	11	3%	0.56
3175	4058: MCTC D29 Ford Road S-N	38	24	-14	-37%	2.49
3176	4059: MCTC D29 Ford Road N-S	9	6	-3	-30%	0.97
3177	4212: ATC D28 Ford Road S-N	29	6	-23	-78%	5.40
3178	4213: ATC D28 Ford Road N-S	9	24	15	168%	3.72
3179	4064: MCTC D28 Lucas Green Road S-N	71	116	45	64%	4.69
3180	4065: MCTC D28 Lucas Green Road N-S	70	133	63	90%	6.23
3181	4815: ATC A327 Guildford Road N-S	636	577	-59	-9%	2.38
3182	4814: ATC A326 Guildford Road S-N	725	833	108	15%	3.85
3185	4063: MCTC D28 Lucas Green Road S-N	109	116	7	7%	0.70
3186	4062: MCTC D28 Lucas Green Road N-S	90	133	43	47%	4.04
3187	4810: ATC A322 Guildford Road S-N	929	818	-111	-12%	3.77
3188	4811: ATC A323 Guildford Road N-S	818	713	-105	-13%	3.81
3189	4812: ATC A324 Guildford Road S-N	967	724	-243	-25%	8.36
3190	4813: ATC A325 Guildford Road N-S	840	738	-102	-12%	3.64
3191	2963: MCTC C11 Fellow Green W-E	442	370	-72	-16%	3.58
3192	2964: MCTC C11 Fellow Green E-W	213	222	9	4%	0.63
3193	2962: MCTC C11 Beldam Bridge Road W-E	438	450	12	3%	0.59
3194	2961: MCTC C11 Beldam Bridge Road E-W	172	217	45	26%	3.24
3195	2960: MCTC D25 Benner Lane S-N	172	232	60	35%	4.20
3196	2959: MCTC D25 Benner Lane N-S	209	317	108	52%	6.67
3197	3846: MCTC C4 Lightwater Road S-N	537	333	-204	-38%	9.76
3198	3845: MCTC C4 Lightwater Road N-S	96	108	12	13%	1.22
3199	3847: MCTC B311 Red Road E-W	438	482	44	10%	2.04
3200	3848: MCTC B311 Red Road W-E	655	629	-26	-4%	1.03
3201	853: Partial Scotts Grove Road N-S	178	173	-5	-3%	0.34
3202	852: Partial Scotts Grove Road S-N	404	494	90	22%	4.25
3203	2711: MCTC A319 High Street N-S	657	623	-34	-5%	1.34
3204	2710: MCTC A319 High Street S-N	727	731	4	1%	0.16
3205	2709: MCTC A319 Chertsey Road W-E	403	245	-158	-39%	8.76
3223	521: Partial A320 Guildford Road S-N	663	639	-24	-4%	0.94
3224	522: Partial A320 Guildford Road N-S	863	772	-91	-11%	3.17
3225	3580: MCC D3682 Holly Bank Road N-S	105	97	-8	-7%	0.76
3226	3579: MCC D3682 Holly Bank Road S-N	108	118	10	9%	0.96
3227	4302: ATC B380 Smarts Heath Road E-W	212	206	-6	-3%	0.42
3228	4301: ATC B380 Smarts Heath Road W-E	289	269	-20	-7%	1.18
3229	1861: RT ATC A320 Egley Road S-N	497	712	215	43%	8.75
3230	1860: RT ATC A320 Egley Road N-S	600	563	-37	-6%	1.51
3231	19: Partial A320 Egley Road S-N	705	712	7	1%	0.27
3235	3049: MCTC D3615 Warwick Lane S-N	3	0	-3	-100%	2.45
3237	3047: MCTC C141 St Johns Hill Road E-W	363	411	48	13%	2.42
3238	3048: MCTC C141 St Johns Hill Road W-E	281	332	51	18%	2.93
3239	3051: MCTC C141 St Johns Road W-E	437	473	36	8%	1.68
3240	3052: MCTC C141 St Johns Road E-W	505	530	25	5%	1.09
3241	1601: ATC C141 St Johns Hill Road Bridge E-W	339	411	72	21%	3.70
3242	1602: ATC C141 St Johns Hill Road Bridge W-E	455	332	-123	-27%	6.18
3243	3072: MCTC C141 Wych Hill E-W	321	386	65	20%	3.45
3244	3071: MCTC C141 Wych Hill W-E	529	456	-73	-14%	3.28
3246	3737: MCC D3687 Blackbridge Road S-N	36	0	-36	-100%	8.49
3247	348: Partial C151 Wych Hill Lane (from St Johns) E-W	771	925	154	20%	5.29
3250	346: Partial C151 Wych Hill Lane (from A320) E-W	713	856	143	20%	5.10
3251	343: Partial York Road S-N	131	262	131	100%	9.33
3252	344: Partial York Road N-S	83	69	-14	-17%	1.58
3253	3066: MCTC C142 Triggs Lane S-N	666	648	-18	-3%	0.69
3254	3065: MCTC C142 Triggs Lane N-S	790	752	-38	-5%	1.37
3255	3070: MCTC C141 Wych Hill Lane W-E	1050	1099	49	5%	1.50
3256	3069: MCTC C141 Wych Hill Lane E-W	702	925	223	32%	7.82
3257	3786: MCTC A324 Lockfield Drive W-E	1020	882	-138	-14%	4.48
3258	3787: MCTC A324 Lockfield Drive E-W	505	538	33	7%	1.46
3259	3785: MCTC A324 Lockfield Drive W-E	980	844	-136	-14%	4.52

Count No.	Name	AM Peak (8-9) Obs TOTAL	AM Peak (8-9) Mod TOTAL	Diff	% Diff	GEH
3261	3782: MCTC D3637 Arthurs Bridge Road N-S	303	314	11	4%	0.61
3262	3783: MCTC D3637 Arthurs Bridge Road S-N	112	146	34	31%	3.01
3263	2026: ATC A3046 Chobham Road E-W	463	343	-120	-26%	5.96
3264	2025: ATC A3046 Chobham Road W-E	705	679	-26	-4%	0.98
3265	2848: MCTC C8 Mincing Lane N-S	69	1	-68	-98%	11.39
3266	2849: MCTC C8 Mincing Lane S-N	56	38	-18	-32%	2.63
3268	2852: MCTC A319 Chertsey Road W-E	470	330	-140	-30%	7.01
3269	2851: MCTC A319 Chertsey Road W-E	512	331	-181	-35%	8.80
3270	2850: MCTC A319 Chertsey Road E-W	224	143	-81	-36%	5.95
3305	3452: MCC A322 Bagshot By-Pass S-N	2300	2328	28	1%	0.58
3307	3479: MCC A322 Lightwater By-Pass E-W	878	782	-96	-11%	3.33
3309	2205: TRADS M3 M3 J3 westbound exit E-W	602	661	59	10%	2.36
3313	3476: MCC A322 Bracknell Road S-N	2994	2635	-359	-12%	6.77
3314	3477: MCC A322 Bracknell Road N-S	2470	2564	94	4%	1.88
3316	3492: MCC A322 Bracknell Road N-S	2419	2564	145	6%	2.91
3317	3491: MCC A322 Bracknell Road S-N	2432	2295	-137	-6%	2.81
3318	2089: ATC B3020 Sunninghill Road S-N	380	632	252	66%	11.21
3319	2090: ATC B3020 Sunninghill Road N-S	344	314	-30	-9%	1.67
3326	3896: MCTC C4 Thorndown Lane S-N	685	513	-172	-25%	7.01
3327	3895: MCTC C4 Thorndown Lane N-S	245	240	-5	-2%	0.30
3328	4626: MCTC B386 Updown Hill W-E	396	304	-92	-23%	4.93
3329	4627: MCTC B386 Updown Hill E-W	344	375	31	9%	1.62
3331	4625: MCTC B386 Updown Hill N-S	153	235	82	54%	5.90
3333	3890: MCTC B386 Updown Hill S-N	351	283	-68	-19%	3.84
3335	4622: MCTC B386 Chertsey Road E-W	289	203	-86	-30%	5.51
3338	3443: MCC M3 J2 - J3 E-W	3539	4485	946	27%	14.93
3339	4611: MCTC C3 Church Road S-N	266	208	-58	-22%	3.76
3340	4610: MCTC C3 Church Road N-S	126	147	21	17%	1.84
3341	4632: MCTC B386 School Road W-E	219	226	7	3%	0.44
3345	3616: MCC D533 Heathpark Drive S-N	167	138	-29	-17%	2.32
3346	3617: MCC D533 Heathpark Drive N-S	29	23	-6	-22%	1.23
3347	2019: ATC A329 Blacknest Road W-E	767	763	-4	-1%	0.14
3348	2020: ATC A329 Blacknest Road E-W	509	491	-18	-4%	0.82
3349	1910: ATC A30 London Road S-N	644	697	53	8%	2.06
3350	1909: ATC A30 London Road N-S	425	495	70	16%	3.25
3353	2052: ATC B386 Longcross Road E-W	187	223	36	19%	2.54
3357	3330: MCC D4045 Accommodation Road N-S	127	90	-37	-29%	3.51
3358	3329: MCC D4045 Accommodation Road S-N	133	106	-27	-20%	2.44
3360	3328: MCC D3918 Wellington Avenue N-S	265	335	70	26%	4.03
3361	3321: MCC C10 Trumps Green Road S-N	318	378	60	19%	3.21
3362	3322: MCC C10 Trumps Green Road N-S	147	132	-15	-10%	1.27
3363	474: Partial A30 London Road W-E	1379	1452	73	5%	1.95
3364	473: Partial A30 London Road E-W	945	977	32	3%	1.05
3366	4319: ATC B389 Christchurch Road E-W	436	484	48	11%	2.23
3367	4323: ATC B389 Christchurch Road E-W	549	547	-2	0%	0.10
3368	4324: ATC B389 Christchurch Road W-E	489	476	-13	-3%	0.58
3369	4326: ATC B389 Christchurch Road W-E	502	476	-26	-5%	1.16
3370	4325: ATC B389 Christchurch Road E-W	565	547	-18	-3%	0.78
3547	4922: ATC D3192 Callow Hill S - N	498	502	4	1%	0.20
3548	4923: ATC D3192 Callow Hill N - S	321	299	-22	-7%	1.23
3576	9002: ASS* M3 EB Within J4	3796	3833	37	1%	0.60
3577	9003: ASS* M3 EB J4 - J3	5301	5507	206	4%	2.81
3578	9005: ASS* M3 EB J3 - J2	5757	5646	-111	-2%	1.47
3579	9006: ASS* M3 EB Within J2	1661	1794	133	8%	3.19
3580	9007: ASS* M3 EB J2 - J1	2901	3042	141	3%	2.59
3581	9008: ASS* M3 WB J1 - J2	3197	2749	-448	-14%	8.21
3582	9009: ASS* M3 WB Within J2	1354	1482	129	9%	3.42
3583	9011: ASS* M3 WB Within J4	2962	2971	9	0%	0.17
3584	9013: ASS* M25 CW J10 - J11	6837	6617	-219	-3%	2.67
3585	9015: ASS* M25 CW J11 - J12	7243	7018	-225	-3%	2.66
3586	9016: ASS* M25 CW Within J12	5007	4792	-215	-4%	3.07
3587	9019: ASS* M25 AC Within J12	4337	3854	-483	-11%	7.54
3588	9021: ASS* M25 AC J11 - J10	6198	5316	-881	-14%	11.61

8.2 PM Peak Hour (1700 – 1800) Link Flow Validation Count Comparison

Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
2	3216: MCTC A30 London Road E-W	1165	971	-194	-17%	5.94
3	4317: ATC B389 Christchurch Road E-W	565	577	12	2%	0.48
4	4318: ATC B389 Christchurch Road W-E	415	426	11	3%	0.53
21	2707: MCTC B383 Windsor Road S-N	427	436	9	2%	0.41
22	2706: MCTC B383 Windsor Road N-S	591	563	-28	-5%	1.16
27	3819: MCTC A322 Bagshot Road S-N	696	612	-84	-12%	3.27
28	3820: MCTC A322 Bagshot Road N-S	554	412	-142	-26%	6.47
32	3045: MCTC D7309 St Johns Road N-S	257	234	-23	-9%	1.50
33	3046: MCTC D7309 St Johns Road S-N	182	182	0	0%	0.02
49	3183: MCTC A30 London Road E-W	1427	1027	-400	-28%	11.42
50	4200: ATC D3576 Laundry Lane S-N	433	415	-18	-4%	0.87
52	4816: ATC A328 Guildford Road S-N	662	579	-83	-13%	3.34
53	4817: ATC A329 Guildford Road N-S	891	691	-200	-22%	7.13
56	4556: MCTC A323 Guildford Road S-N	359	377	18	5%	0.92
57	4555: MCTC A323 Guildford Road N-S	534	413	-121	-23%	5.54
58	4846: MCTC A323 Guildford Road N-S	534	413	-121	-23%	5.54
59	4847: MCTC A323 Guildford Road S-N	359	377	18	5%	0.92
61	4823: ATC A324 Dawney Hill N-S	209	193	-16	-7%	1.10
83	3822: MCTC Unclassified Raynes Close E-W	1	0	-1	-100%	1.41
84	3821: MCTC Unclassified Raynes Close W-E	12	0	-12	-100%	4.90
279	1848: RT ATC A247 Kingfield Road E-W	458	381	-77	-17%	3.76
280	1849: RT ATC A247 Kingfield Road W-E	518	401	-117	-23%	5.44
281	3150: MCTC A247 High Street W-E	683	586	-97	-14%	3.85
282	3149: MCTC A247 High Street E-W	874	792	-82	-9%	2.86
283	3152: MCTC B380 Vicarage Road E-W	546	482	-64	-12%	2.84
284	3151: MCTC B380 Vicarage Road W-E	288	233	-55	-19%	3.39
285	3148: MCTC A247 Kingfield Road S-N	432	310	-122	-28%	6.34
286	3147: MCTC A247 Kingfield Road N-S	499	353	-146	-29%	7.09
289	2884: MCTC A247 High Street W-E	788	685	-103	-13%	3.81
290	2885: MCTC A247 High Street E-W	812	817	5	1%	0.16
291	2881: MCTC B382 High Street W-E	654	633	-21	-3%	0.82
292	2880: MCTC B382 High Street E-W	540	593	53	10%	2.21
318	4552: MCTC D7244 Goldsworth Road N-S	646	569	-77	-12%	3.13
321	2912: MCTC A320 Guildford Road N-S	756	817	61	8%	2.19
322	2913: MCTC A320 Guildford Road S-N	424	432	8	2%	0.38
323	2914: MCTC A247 Claremont Avenue N-S	396	409	13	3%	0.67
324	2916: MCTC A320 Guildford Road E-W	396	424	28	7%	1.38
325	2915: MCTC A320 Guildford Road W-E	460	448	-12	-3%	0.58
326	4110: ATC D3708 White Rose Lane W-E	124	197	73	59%	5.73
327	4111: ATC D3708 White Rose Lane E-W	193	205	12	6%	0.86
329	4549: MCTC D7244 Goldsworth Road E-W	344	457	113	33%	5.66
330	4548: MCTC D7281 Church Street West S-N	386	560	174	45%	7.98
331	4547: MCTC D7281 Church Street West N-S	343	263	-80	-23%	4.57
332	4554: MCTC D7242 Forge End S-N	209	284	75	36%	4.75
333	4553: MCTC D7242 Forge End N-S	78	11	-67	-86%	9.99
334	2549: MCTC C143 High Street W-E	165	217	52	31%	3.75
335	2550: MCTC C143 High Street E-W	152	159	7	5%	0.58
336	2563: MCTC D3708 Victoria Road E-W	517	426	-91	-18%	4.19
337	2562: MCTC D3708 Victoria Road W-E	468	309	-159	-34%	8.05
339	2597: MCTC D3708 Heathside Car Park N-S	23	29	6	25%	1.12
340	2596: MCTC D3708 Heathside Car Park S-N	113	98	-15	-14%	1.51
343	2576: MCTC D3708 White Rose Lane S-N	47	57	10	22%	1.43
344	2575: MCTC D3708 White Rose Lane N-S	186	208	22	12%	1.57
345	2560: MCTC D3710 Oriental Road W-E	452	412	-40	-9%	1.93
346	2565: MCTC D3708 White Rose Lane S-N	101	95	-6	-6%	0.59
347	2564: MCTC D3708 White Rose Lane N-S	221	262	41	18%	2.62
348	2568: MCTC D3710 Oriental Road W-E	482	317	-165	-34%	8.27

Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
349	2566: MCTC D3710 Oriental Road W-E	602	579	-23	-4%	0.96
353	2573: MCTC D3710 Park Road W-E	29	22	-7	-25%	1.43
354	2574: MCTC D3710 Park Road E-W	41	28	-13	-33%	2.30
355	1666: ATC D3709 Pembroke Road S-N	132	134	2	2%	0.19
356	1665: ATC D3709 Pembroke Road N-S	175	194	19	11%	1.39
358	1667: ATC D3709 Pembroke Road E-W	261	400	139	53%	7.65
359	4109: ATC D3708 White Rose Lane E-W	194	205	11	6%	0.79
360	4108: ATC D3708 White Rose Lane W-E	124	197	73	59%	5.73
361	1651: ATC D3710 Park Road E-W	168	158	-10	-6%	0.79
362	1652: ATC D3710 Park Road W-E	71	142	71	100%	6.88
363	1650: ATC D3710 Park Road W-E	70	147	77	110%	7.40
364	1649: ATC D3710 Park Road E-W	165	237	72	44%	5.11
365	2602: MCTC C140 Brewery Road W-E	230	279	49	21%	3.09
366	2603: MCTC C140 Brewery Road E-W	438	468	30	7%	1.42
367	2581: MCTC Unclassified The Peacocks Centre Car Park N-S	160	154	-6	-4%	0.47
368	2580: MCTC Unclassified The Peacocks Centre Car Park S-N	476	432	-44	-9%	2.05
369	2546: MCTC D3662 Chertsey Rd S-N	190	312	122	64%	7.71
370	2547: MCTC C143 The Broadway E-W	289	309	20	7%	1.16
371	2548: MCTC C143 The Broadway W-E	112	167	55	49%	4.63
374	2906: MCTC A3046 Chobham Road N-S	426	380	-46	-11%	2.31
375	2907: MCTC A3046 Chobham Road S-N	604	590	-14	-2%	0.58
376	2908: MCTC A3046 Chobham Road S-N	788	712	-76	-10%	2.77
377	2909: MCTC A3046 Chobham Road N-S	405	334	-71	-18%	3.71
378	2911: MCTC C140 Brewery Road E-W	394	434	40	10%	1.96
379	2910: MCTC C140 Brewery Road W-E	189	266	77	41%	5.09
381	2556: MCTC D3662 Church Street East W-E	378	310	-68	-18%	3.67
382	2552: MCTC C143 Chertsey Road S-N	749	565	-184	-25%	7.17
384	2590: MCTC D3710 Oriental Road E-W	388	357	-31	-8%	1.60
385	2591: MCTC D3710 Oriental Road W-E	319	364	45	14%	2.43
387	2824: MCTC C143 The Broadway E-W	239	309	70	29%	4.23
388	2569: MCTC D3710 Oriental Road E-W	457	347	-110	-24%	5.47
389	2570: MCTC D3710 Oriental Road W-E	314	311	-3	-1%	0.17
391	2593: MCTC D3710 Oriental Road E-W	426	347	-79	-18%	4.00
393	2822: MCTC C143 Stanley Road S-N	621	570	-51	-8%	2.08
394	2821: MCTC C143 Stanley Road N-S	95	98	3	3%	0.31
395	3583: MCC C143 Maybury Road E-W	419	430	11	3%	0.53
396	2553: MCTC C143 Stanley Road E-W	538	504	-34	-6%	1.49
397	2554: MCTC C143 Stanley Road W-E	336	347	11	3%	0.58
404	1663: ATC D3709 Pembroke Road S-N	101	134	33	33%	3.06
405	1664: ATC D3709 Pembroke Road N-S	136	191	55	40%	4.30
408	1878: RT ATC C144 Maybury Hill N-S	171	141	-30	-18%	2.40
412	1881: RT ATC D3731 East Hill W-E	311	354	43	14%	2.36
413	1880: RT ATC D3731 East Hill E-W	325	337	12	4%	0.64
417	4731: MCTC C143 Walton Road W-E	448	497	49	11%	2.24
420	4606: MCTC D3668 Albert Drive E-W	436	388	-48	-11%	2.37
421	4607: MCTC D3668 Albert Drive W-E	404	366	-38	-10%	1.96
424	3646: MCC D3670 Forsyth Road E-W	211	217	6	3%	0.39
425	4307: ATC D3668 Albert Drive S-N	385	207	-178	-46%	10.35
426	4308: ATC D3668 Albert Drive N-S	412	409	-3	-1%	0.14
427	4290: ATC A3046 Chobham Road E-W	1246	1108	-138	-11%	4.02
429	1858: RT ATC A320 Chertsey Road S-N	799	686	-113	-14%	4.13
430	1859: RT ATC A320 Chertsey Road N-S	748	671	-77	-10%	2.88
431	4284: ATC A320 Chertsey Road S-N	871	712	-159	-18%	5.67
432	4285: ATC A320 Chertsey Road N-S	952	749	-203	-21%	6.95
434	1585: ATC D3782 Martyrs Lane S-N	210	204	-6	-3%	0.44
435	1583: ATC D3782 Martyrs Lane S-N	179	204	25	14%	1.79
436	1584: ATC D3782 Martyrs Lane N-S	308	288	-20	-7%	1.16
437	1582: ATC A245 Woodham Lane E-W	843	784	-59	-7%	2.06
438	1581: ATC A245 Woodham Lane W-E	714	681	-33	-5%	1.24
439	4242: ATC A320 Guildford Road N-S	1032	901	-131	-13%	4.20
441	2042: ATC B367 Newark Lane N-S	362	380	18	5%	0.92
442	2041: ATC B367 Newark Lane S-N	361	351	-10	-3%	0.54
443	4294: ATC D3744 Lock Lane W-E	101	115	14	14%	1.39

Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
444	4295: ATC D3744 Lock Lane E-W	166	173	7	4%	0.54
454	4309: ATC D3668 Albert Drive W-E	314	175	-139	-44%	8.92
455	4310: ATC D3668 Albert Drive E-W	187	107	-80	-43%	6.60
456	3715: MCC D3743 Coldharbour Road W-E	84	64	-20	-24%	2.33
457	3716: MCC D3743 Coldharbour Road E-W	57	3	-54	-96%	9.98
460	2750: MCTC A245 Sheerwater Road N-S	986	802	-184	-19%	6.14
461	2751: MCTC A245 Sheerwater Road S-N	916	755	-161	-18%	5.56
462	2752: MCTC A245 Sheerwater Road S-N	899	849	-50	-6%	1.68
463	2753: MCTC A245 Sheerwater Road N-S	1070	867	-203	-19%	6.54
464	2755: MCTC D3668 Albert Drive E-W	313	204	-109	-35%	6.76
465	2754: MCTC D3668 Albert Drive W-E	414	174	-240	-58%	13.99
467	2610: MCTC D3759 Station Approach N-S	244	269	25	10%	1.53
468	2612: MCTC D3759 Station Approach S-N	132	144	12	9%	1.05
469	2613: MCTC D3759 Station Approach N-S	285	258	-27	-10%	1.66
473	3138: MCTC D3057 Woodham Park Road N-S	128	68	-60	-47%	6.02
474	3135: MCTC D3062 Queen Marys Drive E-W	207	228	21	10%	1.43
475	3136: MCTC D3062 Queen Marys Drive W-E	118	136	18	15%	1.57
476	3140: MCTC D3057 Woodham Park Road E-W	325	279	-46	-14%	2.66
477	3139: MCTC D3057 Woodham Park Road W-E	208	174	-34	-16%	2.44
478	4305: ATC D3758 Dartnell Avenue W-E	13	15	2	19%	0.65
479	4306: ATC D3758 Dartnell Avenue E-W	10	4	-6	-63%	2.41
482	1569: ATC A322 Oyster Lane S-N	503	528	25	5%	1.11
483	1570: ATC A323 Oyster Lane N-S	417	419	2	0%	0.09
484	1959: ATC A245 Parvis Road W-E	712	712	0	0%	0.00
485	1960: ATC A245 Parvis Road E-W	741	720	-21	-3%	0.77
487	3355: MCC A245 Parvis Road E-W	734	689	-45	-6%	1.68
1559	4243: ATC A320 Guildford Road S-N	1007	829	-178	-18%	5.88
1560	4244: ATC A320 Guildford Road N-S	928	872	-56	-6%	1.87
1561	1999: ATC A320 Guildford Road S-N	931	829	-102	-11%	3.44
1564	4091: ATC A320 Guildford Road N-S	875	865	-10	-1%	0.35
1565	1996: ATC A319 Chobham Road W-E	304	465	161	53%	8.20
1566	1995: ATC A319 Chobham Road E-W	340	334	-6	-2%	0.30
1571	3514: MCC B386 Longcross Road E-W	513	342	-171	-33%	8.24
1573	3983: MCTC B386 Holloway Hill E-W	864	707	-157	-18%	5.62
1583	3435: MCC M25 J12 - J11 N-S	6887	6282	-605	-9%	7.45
1584	2355: TRADS M25 M25 J12 clockwise - M3 J2 S-N	2225	2093	-132	-6%	2.83
1589	3551: MCC B3121 Spinney Hill W-E	320	113	-207	-65%	14.06
1590	3552: MCC B3121 Spinney Hill E-W	441	155	-286	-65%	16.60
1592	9014: ASS* M25 CW Within J11	5259	5341	82	2%	1.13
1593	2362: TRADS M25 M25 J11 clockwise exit S-N	1002	480	-522	-52%	19.19
1594	2361: TRADS M25 M25 J11 anti-clockwise access N-S	739	479	-260	-35%	10.54
1595	9020: ASS* M25 AC Within J11	5474	5712	238	4%	3.18
1598	1567: ATC A320 Byfleet Road N-S	552	605	53	10%	2.19
1599	1568: ATC A321 Byfleet Road S-N	796	796	0	0%	0.01
1600	1993: ATC A318 Byfleet Road N-S	465	584	119	26%	5.18
1601	1994: ATC A318 Byfleet Road S-N	700	749	49	7%	1.82
1603	1566: ATC A319 New Haw Road S-N	627	449	-178	-28%	7.68
1612	4833: MCC B3121 Station Road N-S	660	282	-378	-57%	17.43
1613	4832: MCC B3121 Station Road S-N	302	233	-69	-23%	4.21
1614	1991: ATC A317 Weybridge Road W-E	752	544	-208	-28%	8.16
1615	1992: ATC A317 Weybridge Road E-W	832	617	-215	-26%	8.01
1644	3980: MCTC A320 Guildford Road S-N	750	449	-301	-40%	12.29
1645	3981: MCTC A320 Guildford Road N-S	960	717	-243	-25%	8.39
1646	3979: MCTC A320 Guildford Road S-N	706	317	-389	-55%	17.19
1647	3978: MCTC A320 Guildford Road N-S	850	580	-270	-32%	10.10
1648	1855: RT ATC A317 St Peters Way East E-W	945	1580	635	67%	17.87
1649	2364: TRADS M25 M25 J11 clockwise access S-N	1599	959	-640	-40%	17.90
1650	2359: TRADS M25 M25 J11 anti-clockwise exit N-S	1237	570	-667	-54%	22.19
1654	1600: ATC A317 Chertsey Road S-N	1030	896	-134	-13%	4.32
1655	1599: ATC A317 Chertsey Road N-S	758	810	52	7%	1.85
1656	3348: MCC A317 Eastworth Road W-E	604	473	-131	-22%	5.65
1657	3349: MCC A317 Eastworth Road E-W	465	332	-133	-29%	6.69
1658	2703: MCTC B387 Weir Road N-S	613	592	-21	-3%	0.85

Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
1659	2702: MCTC B387 Weir Road S-N	496	435	-61	-12%	2.82
1668	4469: MCC B375 Chertsey Bridge E-W	826	759	-67	-8%	2.37
1669	4470: MCC B375 Chertsey Bridge W-E	1173	1038	-135	-11%	4.05
1672	2626: MCTC B389 Sandhills Lane E-W	351	337	-14	-4%	0.73
1673	2627: MCTC B389 Sandhills Lane W-E	259	280	21	8%	1.29
1674	2628: MCTC C10 Trumps Green Road S-N	381	442	61	16%	3.01
1678	2630: MCTC B389 Christchurch Road W-E	409	514	105	26%	4.90
1679	2631: MCTC B389 Christchurch Road E-W	620	624	4	1%	0.16
1682	2200: TRADS M3 M3 J2 eastbound to M25 J12 W-E	2831	3182	351	12%	6.41
1686	2202: TRADS M3 M25 J12 clockwise to M3 J2 eastbound W-E	780	641	-139	-18%	5.21
1687	2199: TRADS M3 M25 J12 clockwise to M3 J2 westbound E-W	1468	1452	-16	-1%	0.41
1688	2197: TRADS M3 M3 J2 westbound to M25 J12 E-W	1279	1286	7	1%	0.20
1691	2352: TRADS M25 M25 J12 anti-clockwise - M3 J2 N-S	2793	2706	-87	-3%	1.67
1692	3527: MCC B388 Thorpe By-Pass S-N	354	352	-2	0%	0.08
1693	3528: MCC B388 Thorpe By-Pass N-S	554	524	-30	-5%	1.27
1694	9018: ASS* M25 AC J13 - J12	7020	6530	-490	-7%	5.96
1695	9017: ASS* M25 CW J12 - J13	6675	6217	-458	-7%	5.70
1698	4245: ATC C10 Stroude Road S-N	243	219	-24	-10%	1.55
1699	4246: ATC C10 Stroude Road N-S	453	408	-45	-10%	2.17
1744	3503: MCC A320 Staines Road S-N	391	411	20	5%	1.00
1745	3504: MCC A320 Staines Road N-S	766	807	41	5%	1.46
1752	1997: ATC A320 Chertsey Lane S-N	397	401	4	1%	0.22
1753	1998: ATC A320 Chertsey Lane N-S	736	724	-12	-2%	0.43
2177	3549: MCC B3007 Weybourne Road W-E	352	410	58	17%	3.00
2178	3550: MCC B3007 Weybourne Road E-W	385	395	10	3%	0.49
2179	2086: ATC B3007 Weybourne Road W-E	418	410	-8	-2%	0.37
2180	2085: ATC B3007 Weybourne Road E-W	399	395	-4	-1%	0.21
2183	2094: ATC B3208 Badshot Lea Road S-N	418	397	-21	-5%	1.06
2184	2093: ATC B3208 Badshot Lea Road N-S	327	308	-19	-6%	1.07
2187	2050: ATC B385 Woodham Lane W-E	404	343	-61	-15%	3.18
2188	2049: ATC B385 Woodham Lane E-W	454	367	-87	-19%	4.31
2198	2221: TRADS M3 Junction 4a - 5 W-E	3915	3755	-160	-4%	2.58
2199	2222: TRADS M3 Junction 5 - 4a E-W	3611	3694	83	2%	1.38
2208	9012: ASS* M3 WB Within J4a	3767	3483	-284	-8%	4.72
2209	9000: ASS* M3 EB Within J4a	3064	3149	85	3%	1.52
2210	2219: TRADS M3 M3 J4A eastbound exit W-E	508	545	37	7%	1.63
2213	2217: TRADS M3 M3 J4A westbound exit E-W	1258	1216	-42	-3%	1.18
2215	2215: TRADS M3 Junction 4 - 4a E-W	4627	4699	72	2%	1.06
2216	9001: ASS* M3 EB J4a - J4	4262	4412	150	4%	2.28
2234	4297: ATC D3744 Wisley Lane N-S	185	173	-12	-6%	0.89
2235	4296: ATC D3744 Wisley Lane S-N	105	115	10	10%	0.99
2242	2213: TRADS M3 M3 J4 eastbound exit W-E	1105	1035	-70	-6%	2.15
2249	4605: MCTC C144 Monument Road S-N	583	578	-5	-1%	0.22
2250	3428: MCC A331 Blackwater Valley Road N-S	3773	3320	-453	-12%	7.61
2251	2211: TRADS M3 M3 J4 westbound exit E-W	1688	1544	-144	-9%	3.57
2252	3427: MCC A331 Blackwater Valley Road S-N	3197	3102	-95	-3%	1.70
2253	2011: ATC A325 Frimley Bypass W-E	1368	1099	-269	-20%	7.67
2254	2012: ATC A325 Frimley Bypass E-W	1139	1159	20	2%	0.60
2257	4197: ATC A331 Blackwater Valley Road N-S	2279	1950	-329	-14%	7.15
2258	4196: ATC A331 Blackwater Valley Road S-N	2035	2126	91	4%	2.00
2260	3698: MCC D3433 Bain Avenue N-S	20	17	-3	-13%	0.61
2261	3697: MCC D3433 Bain Avenue S-N	40	37	-3	-8%	0.51
2262	1711: ATC B3411 Frimley Road S-N	862	1045	183	21%	5.92
2263	1712: ATC B3411 Frimley Road N-S	750	1077	327	44%	10.83
2273	3210: MCTC A331 Blackwater Valley Road N-S	1855	1746	-109	-6%	2.56
2274	3209: MCTC A331 Blackwater Valley Road S-N	1512	1644	132	9%	3.33
2276	4205: ATC A331 Blackwater Valley Road N-S	1443	1451	8	1%	0.21
2277	3203: MCTC A331 Blackwater Valley Road S-N	1332	1272	-60	-4%	1.66
2278	3204: MCTC A331 Blackwater Valley Road N-S	1752	1423	-329	-19%	8.26
2279	3201: MCTC D3571 Riverside Way E-W	339	314	-25	-7%	1.41
2280	3202: MCTC D3571 Riverside Way W-E	68	58	-10	-14%	1.22
2292	3249: MCTC A331 Blackwater Valley Road N-S	1081	760	-321	-30%	10.60
2294	3217: MCTC A331 Blackwater Valley Road N-S	1134	760	-374	-33%	12.17

Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
2296	3219: MCTC D3425 Stanhope Road E-W	702	768	66	9%	2.45
2297	3207: MCTC Unclassified Sainsburys E-W	409	332	-77	-19%	4.00
2298	3208: MCTC Unclassified Sainsburys W-E	416	381	-35	-8%	1.75
2299	4202: ATC B3411 Frimley Road S-N	721	734	13	2%	0.49
2300	4203: ATC B3411 Frimley Road N-S	541	502	-39	-7%	1.69
2303	3861: MCTC D3424 Surrey Avenue S-N	41	45	4	9%	0.54
2304	3862: MCTC D3424 Surrey Avenue N-S	37	38	1	4%	0.22
2306	3864: MCTC D3426 Vale Road E-W	127	175	48	38%	3.93
2307	2660: MCTC D3424 Queen Mary Avenue S-N	5	2	-3	-51%	1.33
2308	2661: MCTC D3424 Queen Mary Avenue N-S	10	0	-10	-98%	4.35
2309	3858: MCTC D3424 Victoria Avenue S-N	53	16	-37	-69%	6.22
2311	3241: MCTC B3411 Frimley Road S-N	698	756	58	8%	2.16
2312	3242: MCTC B3411 Frimley Road N-S	522	590	68	13%	2.88
2313	3238: MCTC B3411 Frimley Road S-N	634	681	47	7%	1.82
2314	3237: MCTC B3411 Frimley Road N-S	425	434	9	2%	0.44
2316	3239: MCTC D3517 The Avenue E-W	207	176	-31	-15%	2.28
2320	1788: ATC A321 Marshall Road N-S	931	1019	88	9%	2.82
2331	3195: MCTC D3576 Tank Road S-N	639	869	230	36%	8.38
2332	3196: MCTC D3576 Tank Road N-S	186	186	0	0%	0.03
2334	4198: ATC A321 Marshall Road S-N	1314	1304	-10	-1%	0.27
2340	3181: MCTC D3425 Yorktown Way N-S	156	147	-9	-6%	0.70
2341	3180: MCTC D3425 Yorktown Way S-N	168	145	-23	-14%	1.82
2342	3194: MCTC D3576 Laundry Lane W-E	718	1173	455	63%	14.79
2343	3178: MCTC A30 London Road E-W	1242	888	-354	-29%	10.85
2344	3179: MCTC A30 London Road W-E	1083	1142	59	5%	1.78
2346	2662: MCTC D3425 Stanhope Road W-E	226	270	44	19%	2.79
2349	3799: MCTC B3411 Frimley Road N-S	393	345	-48	-12%	2.49
2350	3800: MCTC B3411 Frimley Road S-N	326	423	97	30%	5.01
2351	3804: MCTC D3424 Edward Avenue E-W	243	311	68	28%	4.10
2352	3803: MCTC D3424 Edward Avenue W-E	143	246	103	72%	7.36
2353	3802: MCTC B3411 Frimley Road N-S	371	425	54	15%	2.73
2354	3801: MCTC B3411 Frimley Road S-N	404	520	116	29%	5.39
2355	2683: MCTC D3424 Victoria Avenue N-S	26	5	-21	-79%	5.18
2356	2682: MCTC D3424 Victoria Avenue S-N	45	32	-13	-29%	2.13
2357	2685: MCTC D3424 Queen Mary Avenue E-W	297	262	-35	-12%	2.08
2358	2684: MCTC D3424 Queen Mary Avenue W-E	224	270	46	20%	2.92
2360	2678: MCTC D3424 Victoria Avenue N-S	34	27	-7	-21%	1.31
2361	3173: MCTC D3424 Victoria Avenue S-N	122	126	4	4%	0.39
2362	3174: MCTC D3424 Victoria Avenue N-S	13	27	14	106%	3.09
2363	3740: MCC D3426 Vale Road E-W	128	147	19	15%	1.64
2366	3171: MCTC A30 London Road E-W	925	788	-137	-15%	4.67
2367	4254: ATC A30 London Road E-W	1226	888	-338	-28%	10.40
2368	4253: ATC A30 London Road W-E	1041	1142	101	10%	3.07
2370	3244: MCTC A30 London Road W-E	975	1010	35	4%	1.10
2371	3246: MCTC B3411 Frimley Road N-S	271	345	74	27%	4.22
2373	3248: MCTC A30 London Road E-W	953	788	-165	-17%	5.58
2374	3247: MCTC A30 London Road W-E	1122	1142	20	2%	0.60
2376	3158: MCTC A30 London Road E-W	687	578	-109	-16%	4.34
2378	3155: MCTC D3517 The Avenue S-N	56	29	-27	-48%	4.10
2379	4251: ATC A30 London Road W-E	891	829	-62	-7%	2.11
2380	4252: ATC A30 London Road E-W	743	621	-122	-16%	4.69
2381	3163: MCTC D3517 The Avenue S-N	193	140	-53	-27%	4.08
2382	3164: MCTC D3517 The Avenue N-S	235	234	-1	0%	0.05
2385	3160: MCTC D3517 The Avenue S-N	134	62	-72	-54%	7.26
2387	3162: MCTC D3516 Southwell Park Road W-E	259	302	43	16%	2.54
2389	3233: MCTC D3514 Park Street S-N	411	372	-39	-10%	1.99
2390	3234: MCTC D3514 Park Street N-S	411	354	-57	-14%	2.94
2392	3230: MCTC D3514 Park Street N-S	20	36	16	80%	3.02
2393	3232: MCTC D3514 Pembroke Broadway W-E	444	427	-17	-4%	0.80
2394	3235: MCTC D3516 Southwell Park Road W-E	454	471	17	4%	0.77
2395	3236: MCTC D3516 Southwell Park Road E-W	486	410	-76	-16%	3.61
2398	3165: MCTC A30 London Road E-W	751	707	-44	-6%	1.62
2400	3168: MCTC D3515 Lower Charles Street N-S	184	153	-31	-17%	2.38

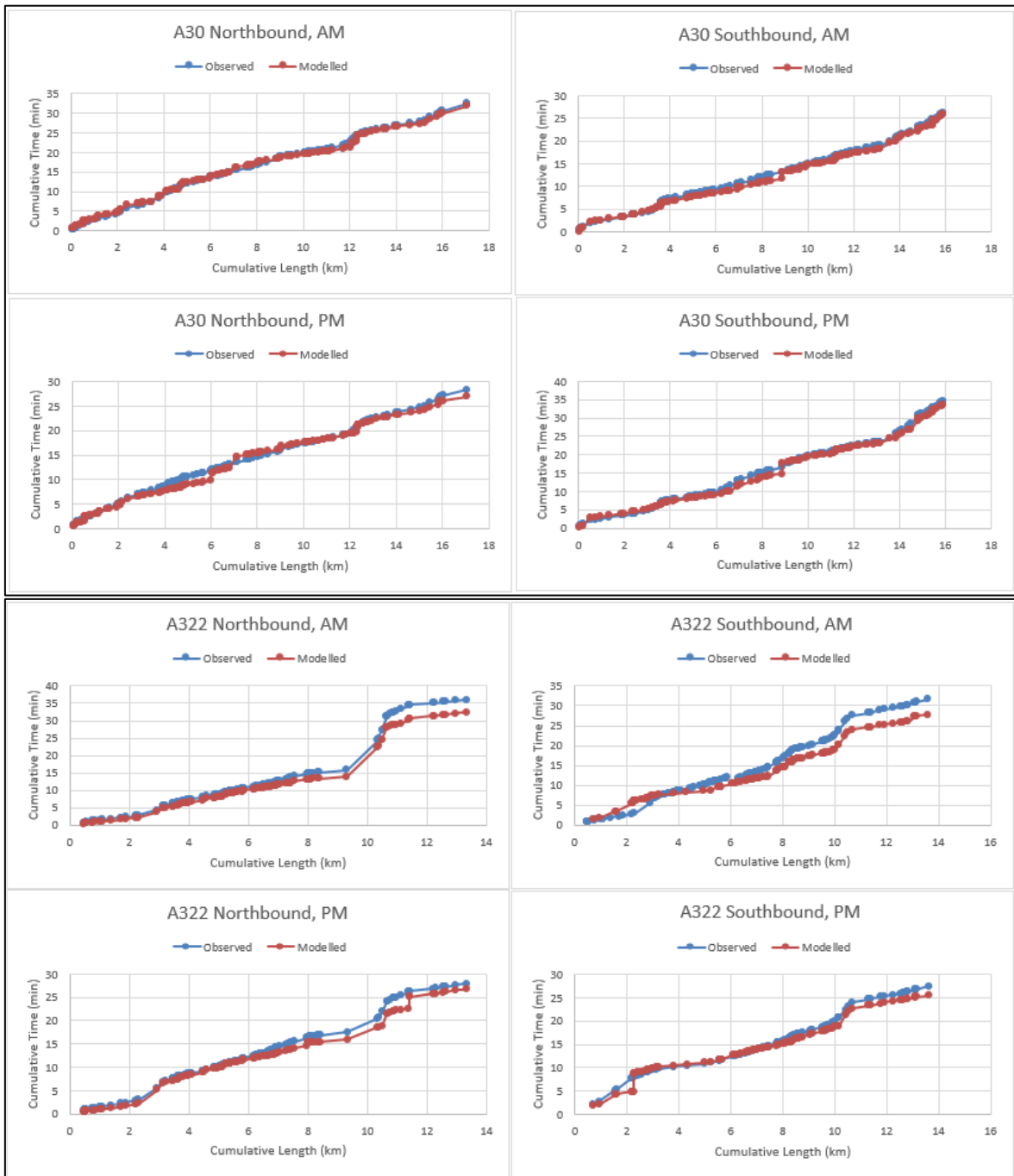
Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
2401	3167: MCTC D3515 Lower Charles Street S-N	188	131	-57	-31%	4.54
2410	2598: MCTC C140 Brewery Road E-W	422	434	12	3%	0.57
2411	2599: MCTC C140 Brewery Road W-E	241	266	25	10%	1.55
2412	2594: MCTC A320 Victoria Way Car Park N-S	49	44	-5	-10%	0.73
2419	4289: ATC A320 Chertsey Road N-S	942	901	-41	-4%	1.34
2420	4288: ATC A320 Chertsey Road S-N	1138	973	-165	-15%	5.09
2431	2600: MCTC Unclassified Brewery Road Car Park S-N	62	50	-12	-19%	1.61
2432	2601: MCTC Unclassified Brewery Road Car Park N-S	35	29	-6	-17%	1.02
2433	2589: MCTC Private Woking Station Car Park S-N	5	10	5	95%	1.75
2434	2588: MCTC Private Woking Station Car Park N-S	73	53	-20	-27%	2.52
2435	3326: MCC D3406 Foxhills Road N-S	195	187	-8	-4%	0.60
2436	3325: MCC D3406 Foxhills Road S-N	99	82	-17	-17%	1.82
2622	3907: MCTC A3 Connaught Road W-E	304	353	49	16%	2.72
2634	4511: MCTC A324 Dawney Hill S-N	341	230	-111	-33%	6.59
2635	4512: MCTC A324 Dawney Hill N-S	194	193	-1	0%	0.05
2725	3509: MCC A331 Blackwater Valley Road S-N	2276	2172	-104	-5%	2.21
2726	3510: MCC A331 Blackwater Valley Road N-S	2504	2330	-174	-7%	3.54
2733	3588: MCC C119 The Street S-N	492	485	-7	-2%	0.34
2734	3589: MCC C119 The Street N-S	347	345	-2	0%	0.08
2737	2007: ATC A323 Aldershot Road W-E	783	694	-89	-11%	3.27
2738	2008: ATC A323 Aldershot Road E-W	814	842	28	3%	0.97
2739	4850: MCTC A323 Church Road S-N	341	368	27	8%	1.41
2740	4851: MCTC A323 Church Road N-S	518	406	-112	-22%	5.23
2741	4849: MCTC C18 Foreman Road S-N	45	48	3	6%	0.39
2742	4848: MCTC C18 Foreman Road N-S	47	46	-1	-2%	0.11
2743	3557: MCC B3411 Vale Road S-N	483	559	76	16%	3.31
2744	3558: MCC B3411 Vale Road N-S	512	408	-104	-20%	4.84
2988	3960: MCC B3411 Vale Road S-N	544	572	28	5%	1.18
2989	3961: MCC B3411 Vale Road N-S	590	583	-7	-1%	0.30
2990	3956: MCTC B3166 Lysons Avenue S-N	486	497	11	2%	0.50
2991	3957: MCTC B3166 Lysons Avenue N-S	502	426	-76	-15%	3.53
2992	3958: MCTC B3166 Lynchford Road W-E	812	783	-29	-4%	1.02
2993	3959: MCTC B3166 Lynchford Road E-W	816	734	-82	-10%	2.95
2994	3955: MCTC B3165 Stratford Road S-N	429	368	-61	-14%	3.05
2995	3954: MCTC B3165 Stratford Road N-S	449	417	-32	-7%	1.53
2996	4220: ATC D3455 Mytchett Place Road W-E	266	262	-4	-2%	0.27
2997	4221: ATC D3455 Mytchett Place Road E-W	481	433	-48	-10%	2.27
2998	4216: ATC B3012 Guildford Road W-E	189	198	9	5%	0.62
2999	4217: ATC B3012 Guildford Road E-W	347	346	-1	0%	0.08
3010	2956: MCTC B3015 Deepcut Bridge Road N-S	98	89	-9	-9%	0.92
3011	2955: MCTC B3015 Deepcut Bridge Road S-N	183	172	-11	-6%	0.82
3012	2958: MCTC D3474 Lake Road E-W	360	352	-8	-2%	0.42
3013	2957: MCTC D3474 Lake Road W-E	272	313	41	15%	2.38
3014	4218: ATC B3012 Gapemouth Road W-E	290	225	-65	-23%	4.08
3015	4219: ATC B3012 Gapemouth Road E-W	521	370	-151	-29%	7.13
3016	2010: ATC A324 Aldershot Road S-N	299	306	7	2%	0.40
3017	2009: ATC A324 Aldershot Road N-S	456	453	-3	-1%	0.12
3020	3620: MCC D49 Mill Lane S-N	25	44	19	75%	3.21
3021	3621: MCC D49 Mill Lane N-S	43	68	25	58%	3.36
3022	4734: MCTC D45 Vapery Lane E-W	14	1	-13	-94%	4.83
3023	4733: MCTC D45 Vapery Lane W-E	12	1	-11	-93%	4.38
3024	2873: MCTC B3405 School Lane E-W	316	403	87	28%	4.59
3025	2872: MCTC B3405 School Lane W-E	175	235	60	34%	4.21
3026	2871: MCTC A324 Pirbright Green N-S	398	429	31	8%	1.51
3027	2870: MCTC A324 Pirbright Green S-N	672	633	-39	-6%	1.54
3030	4514: MCTC B3012 Gole Road E-W	479	361	-118	-25%	5.75
3031	4513: MCTC B3012 Gole Road W-E	251	224	-27	-11%	1.78
3035	4508: MCTC A324 Dawney Hill N-S	574	546	-28	-5%	1.18
3036	4506: MCTC A324 Connaught Road W-E	251	256	5	2%	0.29
3037	4505: MCTC A324 Connaught Road E-W	487	452	-35	-7%	1.62
3039	4503: MCTC D44 Brunswick Road N-S	197	196	-1	0%	0.07
3042	4601: MCTC D44 Queens Road S-N	157	160	3	2%	0.21
3043	4600: MCTC D44 Queens Road N-S	171	182	11	7%	0.86

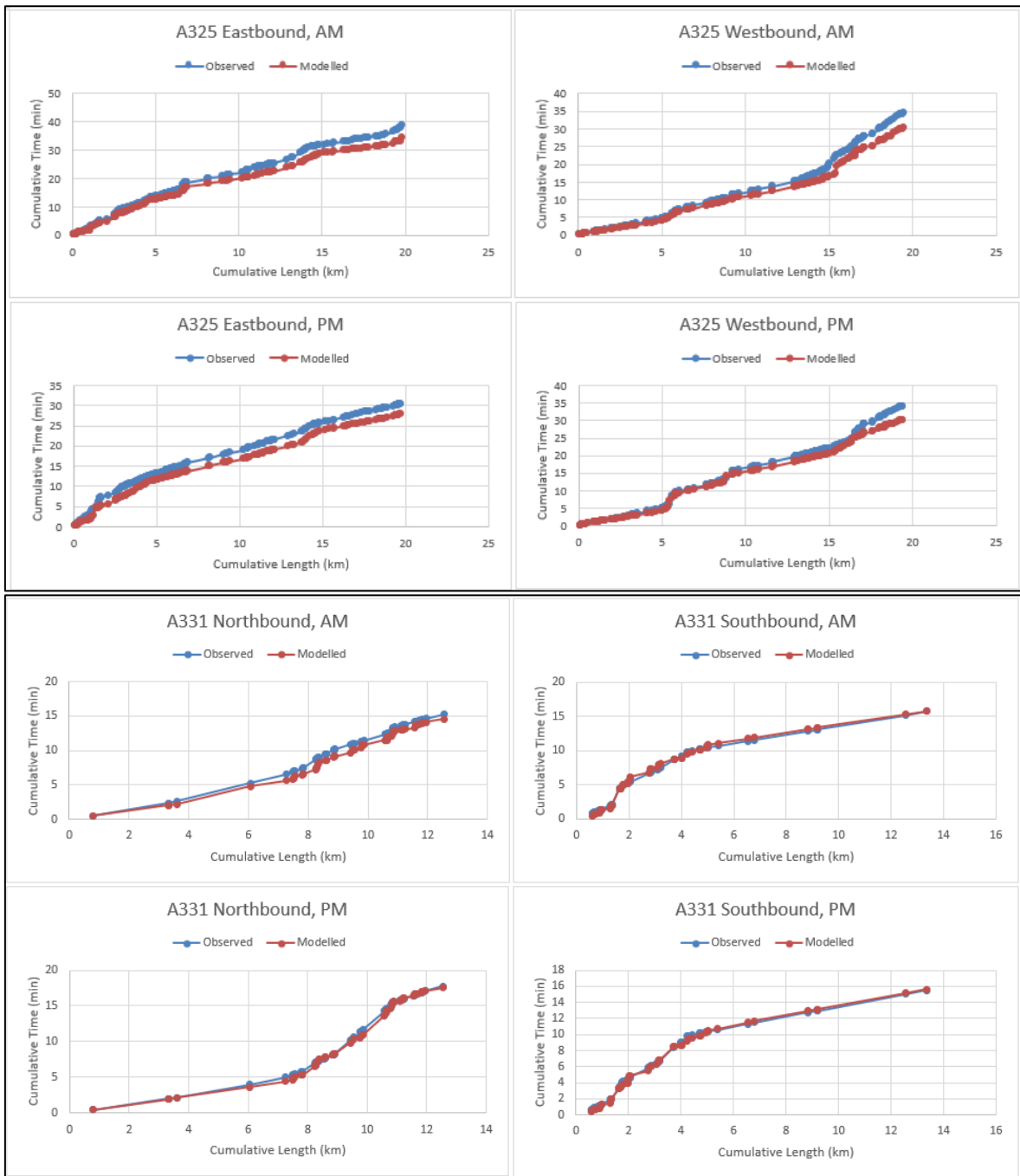
Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
3046	3914: MCTC D3000 Cemetery Pales E-W	259	237	-22	-9%	1.41
3047	3913: MCTC D3000 Cemetery Pales W-E	414	268	-146	-35%	7.90
3048	3905: MCTC A322 Bagshot Road S-N	790	670	-120	-15%	4.46
3049	3906: MCTC A322 Bagshot Road N-S	636	440	-196	-31%	8.45
3050	3912: MCTC A322 Bagshot Road N-S	381	284	-97	-26%	5.34
3051	3911: MCTC A322 Bagshot Road S-N	467	509	42	9%	1.88
3053	1549: ATC D3680 Blackhorse Road N-S	396	565	169	43%	7.71
3054	1551: ATC D3680 Blackhorse Road N-S	239	226	-13	-5%	0.82
3056	3502: MCC A324 Brookwood Lye Road N-S	660	577	-83	-13%	3.33
3057	3501: MCC A324 Brookwood Lye Road S-N	637	522	-115	-18%	4.78
3058	3320: MCC B3411 Frimley High Street S-N	1068	1028	-40	-4%	1.23
3059	3319: MCC B3411 Frimley High Street N-S	697	735	38	5%	1.43
3060	3934: MCTC B3411 Church Road W-E	657	654	-3	0%	0.12
3061	3935: MCTC B3411 Church Road E-W	458	460	2	1%	0.11
3062	3933: MCTC B3411 Frimley Green Road N-S	493	494	1	0%	0.03
3063	3932: MCTC B3411 Frimley Green Road S-N	458	503	45	10%	2.07
3066	3930: MCTC B3411 Grove Cross Road N-S	79	36	-43	-55%	5.69
3067	3931: MCTC B3411 Grove Cross Road S-N	243	340	97	40%	5.67
3068	2648: MCTC D3488 Old Bisley Road W-E	201	170	-31	-15%	2.27
3069	2649: MCTC D3488 Old Bisley Road E-W	154	181	27	18%	2.11
3070	2666: MCTC B3015 Deepcut Bridge Road S-N	458	535	77	17%	3.44
3071	2667: MCTC B3015 Deepcut Bridge Road N-S	468	507	39	8%	1.75
3072	2668: MCTC D3488 Old Bisley Road W-E	109	87	-22	-20%	2.18
3073	2669: MCTC D3488 Old Bisley Road E-W	196	236	40	21%	2.75
3074	2645: MCTC D3488 Edgemoor Road S-N	142	107	-35	-24%	3.11
3075	2644: MCTC D3488 Edgemoor Road N-S	115	75	-40	-35%	4.16
3076	2647: MCTC D3488 Old Bisley Road W-E	149	144	-5	-4%	0.45
3077	2646: MCTC D3488 Old Bisley Road E-W	129	188	59	45%	4.66
3078	2665: MCTC B3015 The Maultway S-N	391	401	10	3%	0.50
3079	2664: MCTC B3015 The Maultway N-S	488	522	34	7%	1.52
3086	3223: MCTC D3512 High Street S-N	206	121	-85	-41%	6.68
3087	3227: MCTC D3528 Heathcote Road N-S	242	164	-78	-32%	5.48
3088	3226: MCTC D3528 Heathcote Road S-N	192	63	-129	-67%	11.47
3089	3229: MCTC D3514 Pembroke Broadway E-W	395	293	-102	-26%	5.48
3092	3224: MCTC D3511 Portesbery Road E-W	591	445	-146	-25%	6.41
3096	3709: MCC D3528 Upper Gordon Road S-N	13	81	68	519%	9.87
3097	1783: ATC D3526 Church Hill W-E	690	363	-327	-47%	14.25
3098	1784: ATC D3526 Church Hill E-W	597	387	-210	-35%	9.46
3099	3669: MCC D3525 Waverley Drive S-N	26	20	-6	-22%	1.22
3100	3670: MCC D3525 Waverley Drive N-S	46	47	1	2%	0.14
3102	3189: MCTC D3512 Knoll Road N-S	351	327	-24	-7%	1.33
3104	4249: ATC A30 London Road W-E	745	723	-22	-3%	0.82
3105	3185: MCTC D3402 Kings Ride S-N	376	203	-173	-46%	10.14
3106	3184: MCTC D3402 Kings Ride N-S	215	167	-48	-22%	3.49
3107	1834: RT ATC A30 London Road W-E	757	861	104	14%	3.66
3108	1835: RT ATC A30 London Road E-W	553	418	-135	-24%	6.15
3111	3389: MCC M3 J3 - J4 N-S	4930	5115	185	4%	2.60
3113	4451: ATC D3404 College Ride W-E	247	78	-169	-69%	13.29
3115	4453: ATC D3404 College Ride W-E	244	35	-209	-85%	17.64
3116	4454: ATC D3404 College Ride E-W	145	139	-6	-4%	0.54
3117	4455: ATC D3404 College Ride W-E	237	101	-136	-57%	10.46
3118	4456: ATC D3404 College Ride E-W	125	35	-90	-72%	10.12
3124	3850: MCTC B311 Red Road E-W	1097	974	-123	-11%	3.82
3125	1753: ATC B311 Red Road W-E	548	596	48	9%	2.01
3126	1754: ATC B311 Red Road E-W	982	939	-43	-4%	1.40
3127	3485: MCC A30 London Road N-S	1224	1203	-21	-2%	0.60
3128	3484: MCC A30 London Road S-N	1054	1046	-8	-1%	0.26
3131	9010: ASS* M3 WB Within J3	4726	4570	-156	-3%	2.29
3132	2207: TRADS M3 M3 J3 eastbound exit W-E	1244	1149	-95	-8%	2.74
3133	9004: ASS* M3 EB Within J3	3381	3540	159	5%	2.71
3134	3829: MCTC D31 Queens Road W-E	175	160	-15	-9%	1.18
3135	3830: MCTC D31 Queens Road E-W	175	182	7	4%	0.56
3137	4818: ATC A330 Guildford Road S-N	655	579	-76	-12%	3.07

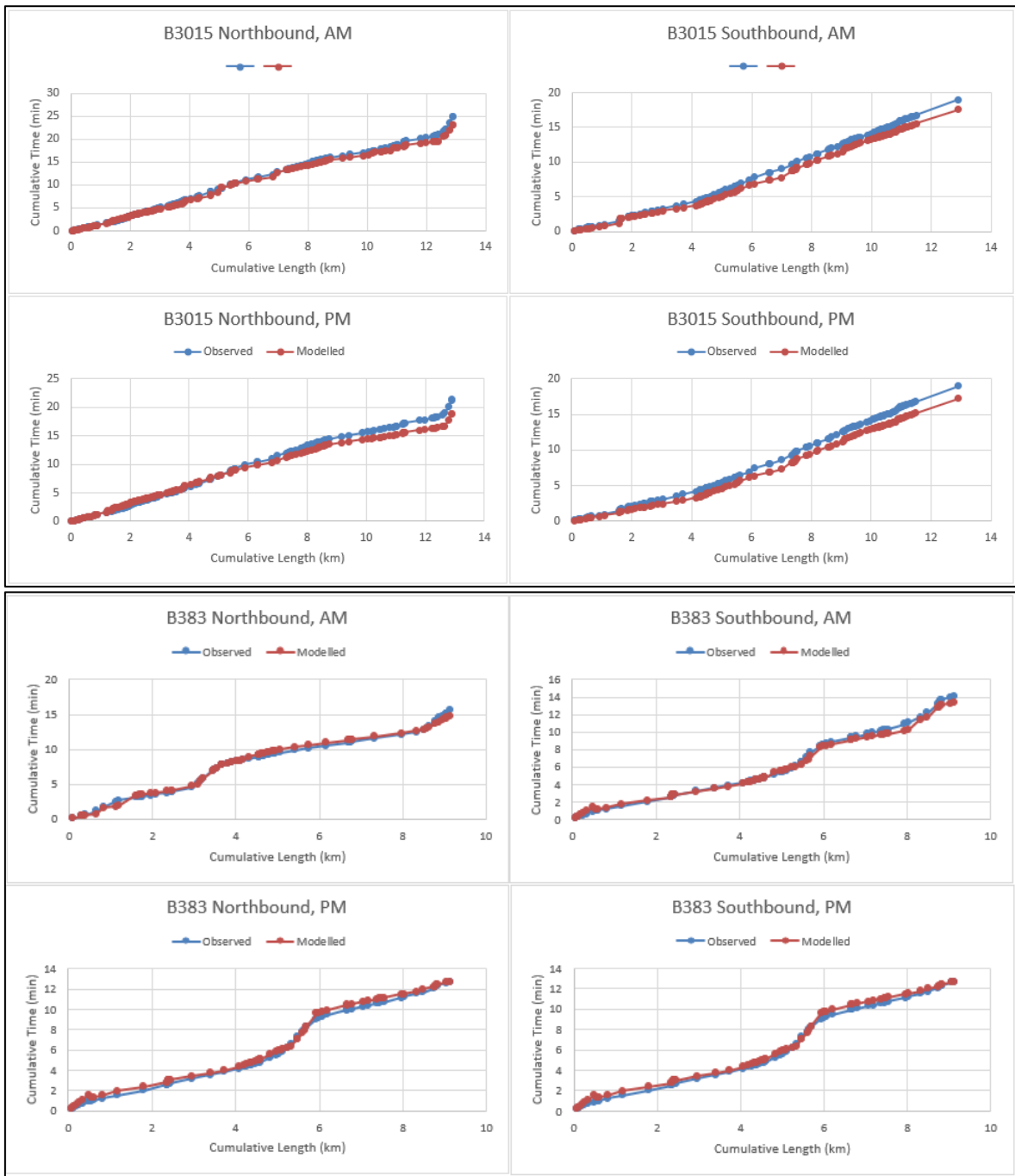
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3139	3823: MCTC A322 Guildford Road N-S	802	663	-139	-17%	5.12
3142	3649: MCC D3602 Oak Tree Road W-E	46	51	5	12%	0.76
3143	3650: MCC D3602 Oak Tree Road E-W	72	96	24	33%	2.61
3146	4820: ATC A332 Guildford Road S-N	651	529	-122	-19%	5.01
3147	4821: ATC A333 Guildford Road N-S	816	592	-224	-27%	8.46
3153	1547: ATC C12 High Street E-W	374	226	-148	-40%	8.54
3155	3703: MCC D7223 Raglan Road S-N	181	180	-1	-1%	0.11
3156	3704: MCC D7223 Raglan Road N-S	153	160	7	5%	0.58
3171	3733: MCC D7306 Robin Hood Road W-E	104	99	-5	-4%	0.46
3172	3734: MCC D7306 Robin Hood Road E-W	146	159	13	9%	1.06
3173	4304: ATC D3624 Barrs Lane W-E	266	312	46	17%	2.71
3174	4303: ATC D3624 Barrs Lane E-W	433	513	80	18%	3.67
3175	4058: MCTC D29 Ford Road S-N	6	12	6	104%	2.07
3176	4059: MCTC D29 Ford Road N-S	11	8	-3	-23%	0.81
3177	4212: ATC D28 Ford Road S-N	8	8	0	6%	0.16
3178	4213: ATC D28 Ford Road N-S	11	12	1	12%	0.37
3179	4064: MCTC D28 Lucas Green Road S-N	41	55	14	35%	2.07
3180	4065: MCTC D28 Lucas Green Road N-S	39	122	83	212%	9.22
3181	4815: ATC A327 Guildford Road N-S	822	678	-144	-17%	5.25
3182	4814: ATC A326 Guildford Road S-N	717	570	-147	-20%	5.78
3185	4063: MCTC D28 Lucas Green Road S-N	63	55	-8	-12%	0.99
3186	4062: MCTC D28 Lucas Green Road N-S	82	122	40	48%	3.93
3187	4810: ATC A322 Guildford Road S-N	961	785	-176	-18%	5.96
3188	4811: ATC A323 Guildford Road N-S	797	388	-409	-51%	16.80
3189	4812: ATC A324 Guildford Road S-N	906	838	-68	-7%	2.29
3190	4813: ATC A325 Guildford Road N-S	871	627	-244	-28%	8.92
3191	2963: MCTC C11 Fellow Green W-E	171	107	-64	-37%	5.42
3192	2964: MCTC C11 Fellow Green E-W	332	487	155	47%	7.64
3193	2962: MCTC C11 Beldam Bridge Road W-E	136	252	116	85%	8.30
3194	2961: MCTC C11 Beldam Bridge Road E-W	306	404	98	32%	5.20
3195	2960: MCTC D25 Benner Lane S-N	111	71	-40	-36%	4.22
3196	2959: MCTC D25 Benner Lane N-S	102	298	196	192%	13.85
3197	3846: MCTC C4 Lightwater Road S-N	153	179	26	17%	1.99
3198	3845: MCTC C4 Lightwater Road N-S	236	219	-17	-7%	1.10
3199	3847: MCTC B311 Red Road E-W	883	719	-164	-19%	5.78
3200	3848: MCTC B311 Red Road W-E	301	425	124	41%	6.50
3203	2711: MCTC A319 High Street N-S	871	800	-71	-8%	2.46
3204	2710: MCTC A319 High Street S-N	744	741	-3	0%	0.12
3205	2709: MCTC A319 Chertsey Road W-E	397	305	-92	-23%	4.89
3225	3580: MCC D3682 Holly Bank Road N-S	62	67	5	8%	0.60
3226	3579: MCC D3682 Holly Bank Road S-N	77	106	29	37%	3.01
3227	4302: ATC B380 Smarts Heath Road E-W	318	392	74	23%	3.93
3228	4301: ATC B380 Smarts Heath Road W-E	207	239	32	15%	2.13
3229	1861: RT ATC A320 Egley Road S-N	596	611	15	2%	0.60
3230	1860: RT ATC A320 Egley Road N-S	705	726	21	3%	0.78
3235	3049: MCTC D3615 Warwick Lane S-N	6	0	-6	-100%	3.46
3237	3047: MCTC C141 St Johns Hill Road E-W	330	362	32	10%	1.70
3238	3048: MCTC C141 St Johns Hill Road W-E	273	302	29	11%	1.71
3239	3051: MCTC C141 St Johns Road W-E	406	420	14	4%	0.70
3240	3052: MCTC C141 St Johns Road E-W	534	532	-2	0%	0.10
3241	1601: ATC C141 St Johns Hill Road Bridge E-W	375	362	-13	-4%	0.70
3242	1602: ATC C141 St Johns Hill Road Bridge W-E	362	302	-60	-17%	3.29
3243	3072: MCTC C141 Wych Hill E-W	503	531	28	6%	1.22
3244	3071: MCTC C141 Wych Hill W-E	307	266	-41	-13%	2.40
3246	3737: MCC D3687 Blackbridge Road S-N	25	0	-25	-100%	7.07
3253	3066: MCTC C142 Triggs Lane S-N	514	559	45	9%	1.95
3254	3065: MCTC C142 Triggs Lane N-S	843	762	-81	-10%	2.85
3255	3070: MCTC C141 Wych Hill Lane W-E	898	932	34	4%	1.12
3256	3069: MCTC C141 Wych Hill Lane E-W	794	993	199	25%	6.66
3257	3786: MCTC A324 Lockfield Drive W-E	559	450	-109	-20%	4.87
3258	3787: MCTC A324 Lockfield Drive E-W	1011	945	-66	-7%	2.11
3259	3785: MCTC A324 Lockfield Drive W-E	443	270	-173	-39%	9.14
3261	3782: MCTC D3637 Arthurs Bridge Road N-S	303	337	34	11%	1.87

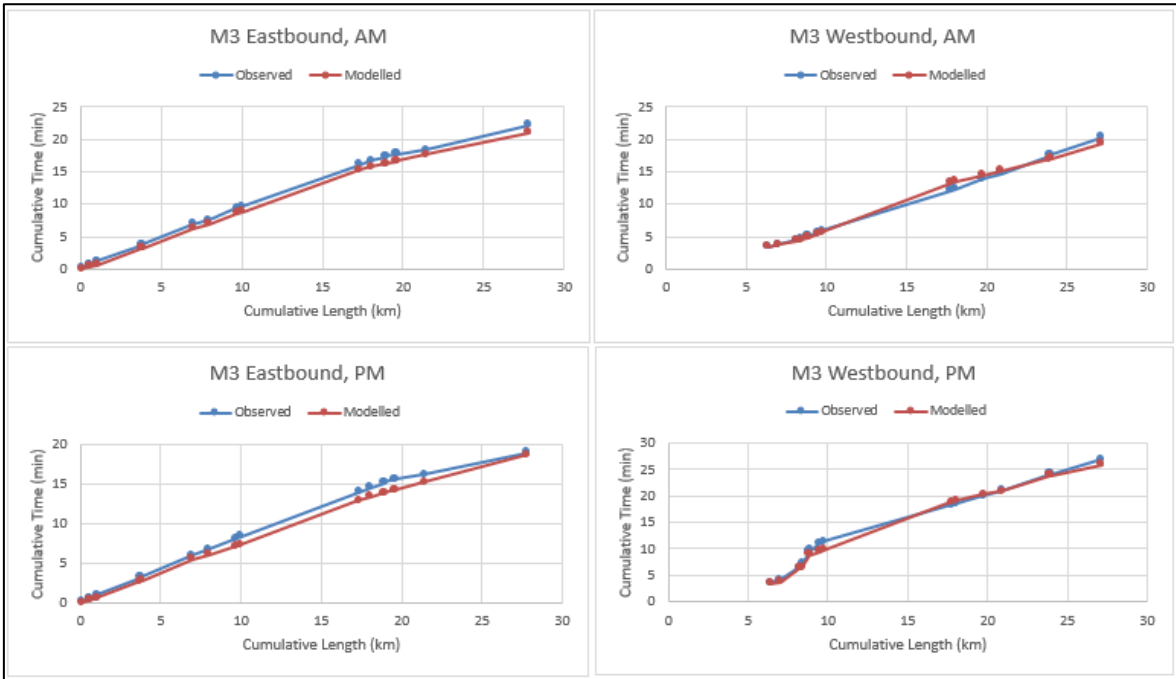
Count No.	Name	PM Peak (17-18) Obs TOTAL	PM Peak (17-18) Mod TOTAL	Diff	% Diff	GEH
3262	3783: MCTC D3637 Arthurs Bridge Road S-N	151	214	63	42%	4.68
3263	2026: ATC A3046 Chobham Road E-W	617	542	-75	-12%	3.11
3264	2025: ATC A3046 Chobham Road W-E	806	844	38	5%	1.31
3265	2848: MCTC C8 Mincing Lane N-S	27	0	-27	-100%	7.35
3266	2849: MCTC C8 Mincing Lane S-N	89	11	-78	-87%	10.97
3268	2852: MCTC A319 Chertsey Road W-E	313	247	-66	-21%	3.96
3269	2851: MCTC A319 Chertsey Road W-E	310	247	-63	-20%	3.79
3270	2850: MCTC A319 Chertsey Road E-W	579	413	-166	-29%	7.45
3305	3452: MCC A322 Bagshot By-Pass S-N	2408	2337	-71	-3%	1.46
3307	3479: MCC A322 Lightwater By-Pass E-W	993	1052	59	6%	1.83
3309	2205: TRADS M3 M3 J3 westbound exit E-W	829	841	12	1%	0.43
3313	3476: MCC A322 Bracknell Road S-N	3017	2776	-241	-8%	4.48
3314	3477: MCC A322 Bracknell Road N-S	2535	2310	-225	-9%	4.57
3316	3492: MCC A322 Bracknell Road N-S	2466	2310	-156	-6%	3.19
3317	3491: MCC A322 Bracknell Road S-N	2660	2197	-463	-17%	9.40
3318	2089: ATC B3020 Sunninghill Road S-N	250	254	4	1%	0.23
3319	2090: ATC B3020 Sunninghill Road N-S	441	464	23	5%	1.09
3326	3896: MCTC C4 Thorndown Lane S-N	175	265	90	51%	6.04
3327	3895: MCTC C4 Thorndown Lane N-S	515	391	-124	-24%	5.84
3328	4626: MCTC B386 Updown Hill W-E	243	373	130	54%	7.42
3329	4627: MCTC B386 Updown Hill E-W	486	622	136	28%	5.79
3331	4625: MCTC B386 Updown Hill N-S	267	384	117	44%	6.50
3333	3890: MCTC B386 Updown Hill S-N	170	273	103	60%	6.90
3335	4622: MCTC B386 Chertsey Road E-W	586	513	-73	-12%	3.12
3338	3443: MCC M3 J2 - J3 E-W	5088	5411	323	6%	4.46
3339	4611: MCTC C3 Church Road S-N	117	50	-67	-57%	7.35
3340	4610: MCTC C3 Church Road N-S	257	226	-31	-12%	1.98
3341	4632: MCTC B386 School Road W-E	314	296	-18	-6%	1.05
3345	3616: MCC D533 Heathpark Drive S-N	37	93	56	151%	6.94
3346	3617: MCC D533 Heathpark Drive N-S	95	36	-59	-62%	7.22
3347	2019: ATC A329 Blacknest Road W-E	553	563	10	2%	0.43
3348	2020: ATC A329 Blacknest Road E-W	666	708	42	6%	1.61
3349	1910: ATC A30 London Road S-N	378	304	-74	-19%	3.99
3350	1909: ATC A30 London Road N-S	619	600	-19	-3%	0.75
3353	2052: ATC B386 Longcross Road E-W	549	396	-153	-28%	7.03
3357	3330: MCC D4045 Accommodation Road N-S	132	75	-57	-43%	5.64
3358	3329: MCC D4045 Accommodation Road S-N	108	104	-4	-4%	0.38
3360	3328: MCC D3918 Wellington Avenue N-S	494	514	20	4%	0.89
3361	3321: MCC C10 Trumps Green Road S-N	155	180	25	16%	1.95
3362	3322: MCC C10 Trumps Green Road N-S	347	415	68	20%	3.48
3366	4319: ATC B389 Christchurch Road E-W	547	543	-4	-1%	0.19
3367	4323: ATC B389 Christchurch Road E-W	608	602	-6	-1%	0.23
3368	4324: ATC B389 Christchurch Road W-E	459	530	71	15%	3.19
3369	4326: ATC B389 Christchurch Road W-E	470	530	60	13%	2.68
3370	4325: ATC B389 Christchurch Road E-W	620	602	-18	-3%	0.71
3547	4922: ATC D3192 Callow Hill S - N	348	293	-55	-16%	3.05
3548	4923: ATC D3192 Callow Hill N - S	631	582	-49	-8%	1.98
3576	9002: ASS* M3 EB Within J4	3198	3377	179	6%	3.12
3577	9003: ASS* M3 EB J4 - J3	4561	4690	129	3%	1.89
3578	9005: ASS* M3 EB J3 - J2	4531	4817	286	6%	4.19
3579	9006: ASS* M3 EB Within J2	1548	1635	87	6%	2.18
3580	9007: ASS* M3 EB J2 - J1	2695	2691	-4	0%	0.07
3581	9008: ASS* M3 WB J1 - J2	2868	2955	87	3%	1.61
3582	9009: ASS* M3 WB Within J2	1589	1669	80	5%	1.99
3583	9011: ASS* M3 WB Within J4	3526	3570	44	1%	0.74
3584	9013: ASS* M25 CW J10 - J11	6140	5821	-319	-5%	4.13
3585	9015: ASS* M25 CW J11 - J12	6638	6300	-338	-5%	4.20
3586	9016: ASS* M25 CW Within J12	4507	4207	-300	-7%	4.55
3587	9019: ASS* M25 AC Within J12	4343	3824	-519	-12%	8.12
3588	9021: ASS* M25 AC J11 - J10	6894	6191	-703	-10%	8.69

8.3 Journey Time Validation Route Comparison Graphs









8.4 SINTRAM72 Latent Demand*Table 8-1 Latent Demand by Scenario - All Time Hours and Modes for SINTRAM Inner Study Area*

Purpose	2038 Do Minimum
home_education	607,372
home_empbusiness	104,864
home_other	654,037
home_shop	613,373
home_visit	173,406
home_work	715,517
NHBEB	144,098
NHBO	670,529
Total	3,683,196

Table 8-2 Percentage Growth by Trip Purpose Relative to 2014 Base

Purpose	2014 Base	2038 Do Minimum
home_education	100.0%	106.9%
home_empbusiness	100.0%	109.2%
home_other	100.0%	118.3%
home_shop	100.0%	118.1%
home_visit	100.0%	111.8%
home_work	100.0%	102.8%
NHBEB	100.0%	113.2%
NHBO	100.0%	116.7%
Total	100.0%	111.9%